# VISUAL PROSTATE SYMPTOM SCORE VERSUS INTERNATIONAL PROSTATE SYMPTOM SCORE IN MEN WITH LOWER URINARY TRACT SYMPTOMS

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**BY**

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*Dedicated*

*To*

*my Family*

*&*

*Respected*

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*At the onset of every major task, difficulties seem insurmountable. But gradually as we tread the chosen path with honesty and preservation, impossible becomes possible.*

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***Dr Tariq Ahmad Mir***

# LIST OF ABBREVIATIONS

| | |
|---|---|
| AUA | American Urological Association |
| AUA-7 | The American Urological Association -7 |
| BOO | Bladder outlet obstruction |
| BPH | Benign prostrate hyperplasia |
| COPD | Chronic obstructive pulmonary disease |
| DM | Diabetes mellitus |
| HTN | Hypertension |
| IPSS | International prostate symptomatic score |
| LUT | lower urinary tract |
| LUTS | lower urinary tract symptoms |
| PSA | Prostate specific antigen |
| Qavg | Average flow |
| Qmax | Peak flow rate |
| QoL | Quality of Life |
| VPSS | Visual prostate symptomatic score |
| VV | Voided volume |

# ABSTRACT

**Introduction:** International Prostate Symptom Score (IPSS) and New Visual Prostate Symptom Score (VPSS) are used to quantify the lower urinary tracts symptoms (LUTS) in men. However, IPSS symptom score suffers a drawback that the patients with lower educational levels experience greater difficulty completing it. VPSS differs from the IPSS in presenting the questionnaire in a pictorial format enabling the old and often illiterate men to assess and express their urinary problems in a much easier and a reliable manner

**Aim of Study**: To compare IPSS and VPSS with each other and their efficacy in and correlation with peak and average urinary flow in Indian men with BHP.

**Materials & Methods:** This was a prospective comparative study enrolling 94 male patients with LUTS over 40 years of age, over a period of 1 year. All the patients were completed the IPSS and VPSS. IPSS was translated to Punjabi language as it is local language in the region. The urodynamic study was performed on all the patients with a uroflowmetery. Efficacy of two scoring system to quantify the symptoms of LUTS in BPH was assessed and compared.

**Results:** Significant correlation was found between the two-scoring system in quantifying LUTS (r 0.583, P 0.000). Correlation was also significant between QoL (0.001), total IPSS and VPSS score with Qmax and Qaverage. However, IPSS and VPSS had no significant correlation with PSA level or prostate size. Out of 94 patients, 76(80.9%) were able fill VPSS without assistance while only 35(37.2%) patients could complete IPSS questionnaire without assistance. Patient's level of education had direct impact on ability to answer both the questionnaires to different degrees, and with increase in education level need for assistance to complete the score decreased.

**Conclusion:** VPPS is a reasonable, reliable and easy alternative to IPSS in evaluating the severity of LUTS in patients with BHP. It has particular utility in our country and poorer sections of the society which usually belong to lower education levels



**Key words:** Benign prostrate hyperplasia, lower urinary tracts symptoms, International Prostate Symptom Score (IPSS), Visual Prostate Symptom Score.

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# INTRODUCTION

Benign prostrate hyperplasia (BPH) is one the leading causes of genito-urinary disease in aging men across the globe including India.[1] The prevalence of BPH is greater than 50% by the age of 60 years and by age 85, is as high as 90%, Of these, between 15% and 30% patients have lower urinary tract symptoms (LUTS) which is a term used for symptoms reported by patient with diseases of the lower urinary tract.[2-4] Lower urinary tract symptoms are common conditions in middle-age or older men [5,6] and with age prostate size also increases.[7-9]

The actual impact of LUTS on the patient's quality of life varies widely and it is the degree of this dysfunction that determines the choice of treatment. Measurements of the size of prostate and the severity of bladder outlet obstruction (BOO) correlate poorly with the severity of LUTS.[10,11] Determining the success of treatment relies heavily on objective measurements of LUTS.[10] A thorough and meticulous clinical history is an important tool in assessing the patient's symptomatic status. However, being subjective, this method is not standardized and varies between clinicians and experts.[12] Several questionnaires which have been validated by researchers have evolved over time to stratify patients according to symptom severity. The American Urological Association -7 (AUA-7) symptom index, later recognized by World Health Organization one of these questionnaires which is widely recommended as a symptom scoring tool for baseline assessment of patients with LUTS. [13,14] Another important tool in the repertoire of a urologist is the IPSS which has excellent test-retest reliability. [13-16]

The IPSS is an easy, self-administered questionnaire which can be safely and accurately used even in lower healthcare setups e.g. primary health care clinics. This scoring system attempts to convert subjective symptoms of the patient into objective measurable numbers that can be further quantified on more detailed exploration.[17] It is

recommended symptom scoring tool for baseline assessment of patients with LUTS.[18] IPSS includes 7 questions regarding symptoms. However, there are few notable pitfalls with the use of IPSS. An important drawback of IPSS is that the patients with lower educational levels experience greater difficulty completing the IPSS. [19-21] Though It was supposed to be a self-administered test making it useful in primary care settings but patients with lower education level find it difficult to understand. [17,22-24]

Minimum schooling of standard 6 is considered as a necessary requirement in order to understand the IPSS questionnaire.[25] Thus in low literacy regions like rural India with low educational level and poor socioeconomic status, this problem is increased in magnitude, hence decreasing the utility of this symptom score. Some studies suggest that IPSS may be difficult to understand even for men with higher levels of education.[26-28] Using an interpreter for the test like getting help from a physician, a nurse, or a family member to complete the IPSS often causes miscommunication, sometimes influencing the patient's responses, and also introduce the risk of bias. There are chances of misinterpretation and misreporting if done by other family members or assisting individuals.[26,27,29] Though it has been translated into many languages, but not all the translations of the IPSS into other languages have been validated. Furthermore, aged patients with LUTS may have visual and cognitive impairment adding to the difficulty,[4,30] as elderly men with diminution of vision may suffer difficulty in reading the IPSS questions.[4,31]

IPSS includes 7 questions regarding symptoms which are used to evaluate storage and voiding symptoms in patients with BPH. The degree of severity of symptoms is graded from 0 to 5 indicating severity of that symptom. The maximum score in the IPSS is 35. Patient with higher IPSS usually require surgical management[32-34], The symptoms are classified into[35]:

I. Mildly symptomatic: Score from 0 to 7
II. Moderately symptomatic: Score from 8 to 19
III. Severely symptomatic: Score from 20 to 35.

## INTERNATIONAL PROSTATE SYMPTOM SCORE (I-PSS)

| Patient Name:<br>Date: | Not At All | Less Than 1 Time In 5 | Less Than Half The Time | About Half The Time | More Than Half The Time | Almost Always | YOUR SCORE |
|---|---|---|---|---|---|---|---|
| **1. Incomplete Emptying**<br>Over the past month, how often have you had a sensation of not emptying your bladder completely after you finish urinating? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **2. Frequency**<br>Over the past month, how often have you had to urinate again less than two hours after you have finished urinating? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **3. Intermittency**<br>Over the past month, how often have you found you stopped and started again several times when you urinated? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **4. Urgency**<br>Over the past month, how often have you found it difficult to postpone urination? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **5. Weak Stream**<br>Over the last month, how often have you had a weak urinary stream? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **6. Straining**<br>Over the past month, how often have you had to push or strain to begin urination? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | **None** | **Once** | **Twice** | **3 times** | **4 times** | **5 or more** | **YOUR SCORE** |
| **7. Nocturia**<br>Over the past month how many times did you most typically get up each night to urinate from the time you went to bed until the time you got up in the morning? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **Total I-PSS Score** | | | | | | | |

| **Quality of Life due to Urinary Symptoms** | Delighted | Pleased | Mostly satisfied | Mixed | Mostly unhappy | Unhappy | Terrible |
|---|---|---|---|---|---|---|---|
| If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

Figure 1: IPSS questionnaire- framed by American Urological Association

A separate question for QoL is also present in the IPSS questionnaire, and the degree of impairment of QoL is graded from 0 to 6. The patients who are unable to complete the questionnaire on their own should be provided with assistance by a reliable relative/doctor.

One of the major problems with the IPSS questionnaire is that the response to many questions could be ambiguous or confusing. If allowed to leave a question, which they felt was unclear, unanswered, almost 33-50% of the patients were unable to complete the entire IPSS questionnaire.[20,36,37] More than a third (34%) of patients with a low (elementary school) educational level are not able fill the IPSS questionnaire.[19] Even in patients with an education level of 7$^{th}$ grade, 87% required assistance to complete the IPSS questionnaire compared with 24% of patients with an education level 10$^{th}$ grade. patients with education level less 9th require more assistance for completing the IPSS questionnaire.[38]

Even when the IPSS is translated from English into a local language it may not be valid to all individuals in the area because often multiple languages are spoken in one region. So even when the dominant language is used for the translation, many patients may still fail, partly or wholly, to comprehend the questionnaire.[31]

To overcome these problems Visual prostate symptom score (VPSS) has been devised by van Der Walt et al from Stellenbosch University, South Africa. It is a picture based tool with four components representing weak stream, day and night frequency and overall quality of life.[38] VPSS is a very easy and reliable tool to assess symptom severity in cases of BPH presenting with LUTS. In contrast to IPSS, it is can accurately be used in assessment of LUTS in patients with lower educational status.[39,40] Moreover, given its pictorial nature, the patients take a much shorter time to complete the questionnaire.[22] There is a statistically significant correlation between VPSS and IPSS, and it can be completed by a greater number of patients without assistance.[38,41] The VPSS can be a useful tool to evaluate the severity of symptoms in

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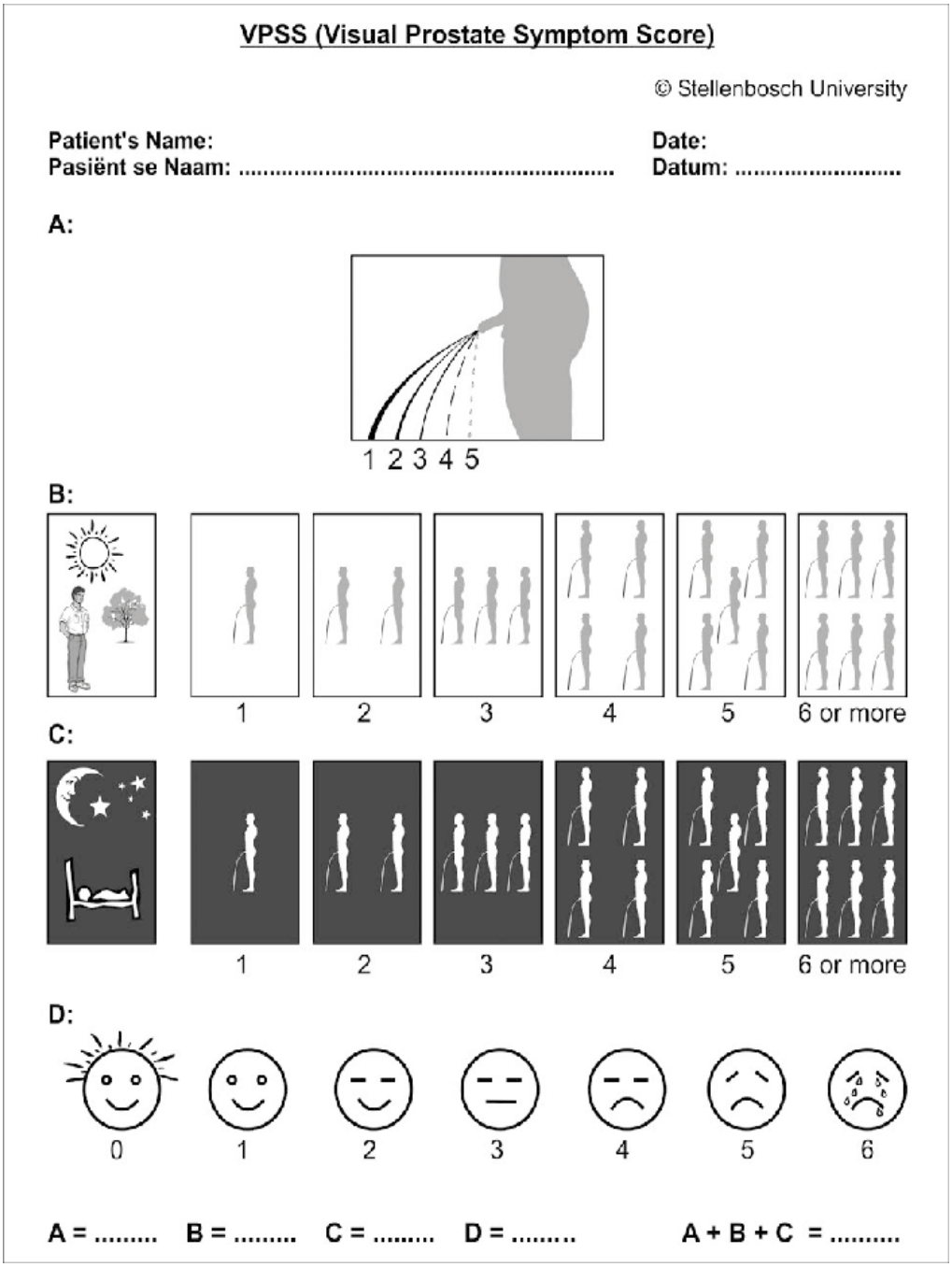



Figure 2, VPSS pictogram questionnaire, framed by van der Walt et al [38]

patients presenting with LUTS due to BPH even with low education level.[28]

The VPSS differs from the IPSS in presenting the AUA questionnaire in a pictorial format enabling the old and often illiterate men to assess their urinary problems in a much easier and a reliable manner.[38] VPSS takes less time in completing.[42] Moreover, a new concept of QoL added in the VPSS helps to better understand the symptoms and its

effect on patient's day-to-day life. VPSS shows significant positive correlation with IPSS.[43,44]

The degree of severity of these symptoms is from 1 to 5 for stream and 1 to 6 for day and night time urinary frequency. Maximum score on VPSS is 17 and the symptoms are divided into three categories:

I. Mildly symptomatic: <3
II. Moderately symptomatic: 4-9
III. Severely symptomatic: 10-17.

VPSS and Qmax and the VPSS and Qaverage are negatively correlated to each other.[38,42]

Multiple studies have evaluated the correlation between the IPSS and VPSS including those in Namibia, Turkish society, Korean populations, and Indonesian populations. They all found a positive correlation between IPSS total score and VPSS total score. Similarly, a positive correlation was observed between VPSS total score and VPSS QoL score, IPSS total versus IPSS QoL, and IPSS QoL versus VPSS QoL. Both total VPSS and total IPSS showed a negative correlation with Qmax. Similarly, a negative correlation is observed between IPSS total versus Qavg and VPSS total versus Qavg.[6,45] All VPSS questions shows a statistically significant correlation with the corresponding IPSS questions: poor stream, VPSS Q3 versus IPSS Q5; nocturia, VPSS Q2 versus IPSS Q7; and frequency, VPSS Q1 versus IPSS Q2.

There is a statistically significant correlation between VPSS and IPSS, and it can be completed by a greater number of patients without assistance.[6,46] The VPSS can be a useful tool to evaluate the severity of symptoms in patients presenting with LUTS due to BPH even with low education level.[4]

The authors of a study in a rural area in Nusa Tenggara Timur, Indonesia, concluded that most participants who are illiterate or with low level of education were able to complete the VPSS without assistance. Language is not a barrier for completing the questionnaire.[22]

The VPSS was made to facilitate illiterate or poorly educated men who found it impossible to complete the IPSS by illustrating the questions into simple diagrams.[38] VPSS may prove as a valid alternative tool for assessing LUTS in a population of diverse educational, cultural, or language background. VPSS is more reliable than the IPSS in low-educated patients and in elderly patients who have difficulty in reading small prints in the IPSS.[38] In patients with urethral stricture disease VPSS correlated significantly with the IPSS, Qmax, and urethral diameter. Also, the questionnaire takes significantly less time to complete than the IPSS.[42]

However, not all the IPSS questions are represented within the VPSS; and in particular, an image for urgency was identified to be a relevant addition. Also, the size and clarity of the VPSS images depicting frequency and nocturia limited comprehension

# AIMS & OBJECTIVES

The present study was planned to compare IPSS and VPSS in Indian men having LUTS prospectively and to compare their efficacy with urodynamic evaluation of the patients.

# REVIEW OF LITERATURE

Lower urinary tract symptoms are common after 40 years of age and a number of scoring systems are using to quantify these symptoms.

In the study conducted by Putra *et al* [6]**,** in Indonesia (2019), 252 male patients of 45 years of age and older with lower urinary tract symptoms were evaluated. The mean±SD age in their study was 67.4±8.9 years ranging between 45 and 101. On IPSS screening they found that 67 patients (26.6%) had mild symptoms, 128 (50.8%) had moderate symptoms, while 57 (22.6%) complained of severe symptoms.

In the study, three quarter of the participants (75.8%) required no assistance in filling the IPSS questionnaire, whereas 88.9% did not require assistance when answering the VPSS. Among patients with low level of education, 36 of 100 men (36%) completed the IPSS questionnaire only with assistance, compared only to 25 of 152 men (16.4%) with higher level of education ($P < 0.001$). On the other hand, to complete the VPSS questionnaire 10 of 100 men (10%) with low level of education required assistance compared to 18 of 152 men (11.8%) with high level of education ($P = 0.649$).

There was statistically significant correlation between the IPSS total score and the VPSS total score and IPSS QoL (P value: <0.001). The VPSS total score was also significantly correlated with the VPSS QoL ($P < 0.001$) and inversely correlated with Qmax ($r = 0.19$, $P < 0.002$). Both scores gave a comparable picture of the patient's perceived quality of life as the IPSS QoL was significantly correlated with the VPSS QoL ($r = 0.76$, $P < 0.001$). IPSS question about weak urinary stream and corresponding VPSS question were significantly correlated with Qmax ($P < 0.006$ and $P < 0.001$, respectively). There was a strong correlation of IPSS storage symptoms and voiding symptoms with the total VPSS storage and VPSS voiding score ($P < 0.001$).

The VPSS voiding score was significantly correlated with Qmax ($r = 0.26$, $P < 0.001$) and PVR ($r = 0.16$, $P = 0.011$). The IPSS voiding score was correlated significantly with PVRU ($P < 0.006$).

In a prospective study conducted by M. Els et al [16] in South Africa in (2018), the authors compared the visual prostate symptom score (VPSS) with the international prostate symptom score (IPSS). Over a period of three years, they evaluated a total of 100 men with mean age 65.1. (range 41-85 years). The level of education and years patients formally spent in school were: 1-7 years in 31 patients and 8-12 years in 66 patients, four had a tertiary education and three had no formal schooling. They found a statistically significant positive correlation between the total VPSS score and total IPSS score. The size of prostate as assessed on digital rectal examination (DRE) was significantly correlated with the prostate volume measured by TRUS.

The VPSS was much easier and patients took significantly less time to complete VPSS than the IPSS. The mean time patients took to complete the IPSS was 165 seconds (range 70-295 seconds) while it was significantly less, 100 seconds for the VPSS (range 35-195 seconds) ($P< 0.001$). The time taken to compete the two scores varied significantly in patients with $7^{th}$ grade education or lower (185s IPSS vs 103s VPSS, $P < 0.001$) but the difference was less significant for patients with $10^{th}$ grade education (142s IPSS vs 90s VPSS; $P = 0.038$).In the group of education grade 7, only 17.6% could complete the IPSS without assistance, whereas 38.2% could complete the VPSS without assistance. This difference was not statistically significant for the education grade 10.

Another study conducted by Dr. Saraswathi et al [21] in India (2018) looked into the correlation between VPSS and IPSS in patients with lower urinary tract symptoms in 150 patients. The mean age in their participants was 61.3 years. Most of the patients were educated below the 10th grade. Seventy per cent (70%) of the patients had moderate IPSS scores. Quantification of symptom by IPSS and VPSS yielded comparable scores both pre and post treatment. A huge majority (95%) of the patients found VPSS easier than IPSS.

Similarly, Taneja et al[28] (2017) carried out a prospective study in India comparing the two scores in 110 men with BHP. The mean age in the study was 66 years (range, 44-79 years). The patients were

categorized into two groups based on their level of education: Group A with education level < 9th standard (55%) and Group B with education level > 9$^{th}$ standard (45%). Overall a larger proportion of patients could complete the VPSS questionnaire without assistance compared to the IPSS questionnaire.

In Group A (education level < 9th), 44 out of 60 patients did not need any assistance to complete the VPSS questionnaire, whereas only 12 of 60 patients could completely fill the IPSS questionnaire without help. In Group B (education level > 9th), the 45 out of 50 patients needed no assistance to complete the VPSS questionnaire, whereas only 36 of 50 patients required no help in completing the IPSS questionnaire ($P < 0.0001$).

There was a statistically significant difference ($P < 0.0001$) in the total time taken by the patients to complete the VPSS and IPSS questionnaires. Both the questionnaires were evaluated for correlation. Positive correlations were found between: IPSS total score and VPSS total score ($r = 0.7235$; $P < 0.0001$), between VPSS total score and VPSS QoL ($r = 0.70753$; $P < 0.0001$), between IPSS total versus IPSS QoL ($r = 0.65583$; $P < 0.0001$), and between IPSS QoL versus VPSS QoL ($r = 0.84093$; $P < 0.0001$).

Both total VPSS and total IPSS revealed a strong correlation with voiding, analysis showed a negative correlation of VPSS/IPSS score with Qmax. [IPSS total versus Qmax ($r = 0.6287$; $P < 0.0001$) and VPSS total versus Qmax ($r$ ¼ $0.5782$; $P < 0.0001$)]. Similarly, a negative correlation was observed between IPSS total versus Qavg ($r = 0.479$; $P < 0.0001$) and VPSS total versus Qavg ($r = 0.5$; $P < 0.0001$). All VPSS questions closely parallel the corresponding IPSS questions with statistical significance.

In a study conducted by Lynn Stothers et al [31] in South Africa (2017), to evaluate the validity of VPSS score with obstructive LUTS, the authors enrolled thirty-three men. The mean age was 61 years (range 28-93); 62% had a grade 1-4 primary education, 9% between grade 8- and 12, 9% grade 5-7, and 20% had no formal education. Level of education was correlated with the average age of the participants from

each group, as calculated with one-way analysis of variance test; men with no education were significantly older than the men who had had primary and secondary education.

Patients perceived all four questions from the VPSS to have different levels of utility to describe their symptoms, and similarly the comprehension of each question differed before and after explanation. The VPSS image which depicts variations in urinary stream was found to be the easiest to comprehend and most useful for reporting their symptoms, as it had the lowest difference between pre- and post-explanation values. Ten per cent of the men reported that the problem they experienced related to their symptoms and which was of great importance to them was not represented on the VPSS, and hence they could not report it. Most common such symptom was urgency which VPSS fails to depict. Other problems that came to the fore were related to difficulty using VPSS in people with diminution or disturbed vision within the group, which made it difficult to see the detail of the images — especially question for frequency and nocturia. And two subjects did not see the relevance of the QoL facial images, as to them, they looked like children's faces

Ashutosh Roy et al [48] conducted a study in India (2016) and observed that most of the patients (55%) in the study were uneducated. Out of a sample of 100 patients, 83% were able to complete the VPSS questionnaire without assistance while 60% of them required some form of help in competing the IPSS questionnaire ($Z = 6.557$, $P < 0.001$). They found a positive correlation between IPSS and VPSS total score ($r = 0.453$ and P 0.001). Similarly, significant positive correlation was noticed between IPSS question for frequency of urination and VPSS question for day time frequency of urination ($r = 0.645$, $P = 0.000$). IPSS question for night frequency correlated strongly with VPSS question nocturia; the value for r was found to be 0.536 ($P = 0.000$).

The query about straining asked on IPSS was positively correlated with the corresponding question regarding the strength of stream during micturition. There was a negative correlation between IPSS total score

and Qavg with value (r-0.368, P = 0.000) and between IPSS total score and Q max of (r -0.433, P = 0.000). An inverse correlation is also observed between VPSS total score and Qavg of value (r -0.497, P = 0.000) and VPSS total score and Qmax of value (r -0.719 P = 0.000). They concluded that VPSS correlates significantly with the IPSS with regard to quantifying the LUTS resulting from BPH. The VPSS can reliably be used in place of the IPSS for the assessment of symptom severity in men with LUTS, who are illiterate or have limited education.

Gupta et al [22] in Nepal (2015), studied and evaluated the VPSS in men with benign enlargement of prostate in a tertiary care Center. They included 79 patients with LUTS suggestive of BHP. Median duration of symptoms of LUT was 15 months. Sixty two per cent of the patients were literate enough to read and write, and the mean level of education was eighth grade. Overall, 43% of the patients could complete VPSS without any need for help. Assistance of medical personnel was needed in 28% of the cases. On the other hand, more than three quarter of the patients (76%) required help from a doctor while completing IPSS (p< 0.001). In illiterate population all patients required assistance to fill up IPSS while 50% of them could fill the VPSS by themselves or with help from a family member. In literate population, filling up of VPSS required assistance of a doctor in 10% while assistance was called for in 63% in IPSS group. Mean IPSS of the patients was 23 ± 7.5 with mean IPSS QoL of 4.7 ± 1.3. Similarly, mean VPSS was 11.9 ± 2.6 with mean VPSS QoL of 3.6 ± 1.6. The median voided volume was 252 ml on uroflowmetry measurements, Qmax was 10.72 ml/s.

Post-procedure USG showed a mean post void residual volume (PVRU) of urine of 76.73 ml. Age had a significant correlation with VPSS (r= 0.38; P = 0.004) but no such correlation could be found with IPSS (r= -0.088; p= 0.529). Age showed correlation with prostate weight as well (r= 0.398; p= 0.003). Inverse correlation was observed between total VPSS and Qmax (P=< 0.0001) and Qavg. Question on weak stream in VPSS also correlated negatively with Qmax, though the result was not significant. Importantly, there was significant positive

correlation between total VPSS and total IPSS. Similarly, IPSS QoL and VPSS QoL correlated positively. Median time for completing VPSS versus IPSS was 1 min 07 sec and 3 min 12 sec respectively in illiterate population (P = 0.019), while it was 4 min 55 sec and 1 min 54 sec in literate population (P = 0.015).

In a study by C F Heyns et al [45] in South Africa (2012), 96 men were enrolled (mean age 64 years, range 33 - 85). Uroflowmetry was performed in 93 men, with VV >150 ml in 66 (71%) cases and VV <150 ml in 27 (29%). The mean total IPSS was 20.9 (range 1 - 41) and the mean total VPSS was 13.7 (range 4 - 23), QoL of life was included. The prostate was deemed clinically benign on DRE in 72 (77%) of the men and malignant in 21 (23%). The mean serum creatinine was 107.5 (range 65 - 232) mmol/l and the mean serum PSA was 30.7 (range 0.2 - 1601) ng/ml.

There were no significant differences with regard to age, mean IPSS and mean VPSS in the groups with VV >150 ml or<150 ml. The correlation between total IPSS and VPSS was statistically significant in both groups, but the correlations between Qmax and Qavg versus total IPSS and VPSS, respectively, were only significant in the group with VV >150 ml. The correlations between Qmax and Qavg and the subject's assessment of his urinary stream were statistically significant for the VPSS but not the IPSS in the group with VV >150 ml but not in the group with VV <150 ml.

There were statistically significant correlations between age and Qmax (r -0.22, P = 0.039), age and VV (r -0.32, P = 0.001) and age and serum PSA (r 0.21, P = 0.042), but not between age and total IPSS, total VPSS, Qavg, PVR or serum creatinine. There were significant correlations between VV and Qmax (r 0.611, p <0.000) as well as Qavg (r 0.543, P = 0.001), and between PVR and Qmax ( r -0.225, P = 0.03) as well as Qavg ( r -0.284, P = 0.006). In the study group as a whole, Qmax correlated significantly with total IPSS as well as VPSS. The correlations between Qavg and total IPSS as well as VPSS were also significant in the study group as a whole

Our plan in this study was to compare IPSS and VPSS and to compare the efficacy of these two systems with peak and average flow.

# MATERIALS AND METHODS

## SOURCE OF DATA

This prospective study was conducted in Department of Urology, Dayanand Medical College & Hospital, Ludhiana to study Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms

**Inclusion criteria**

- Male patients of age >40 years complaining of LUTS due to BPH.

**Exclusion criteria**

- Patients with post-void volume <150 ml on uroflowmetry,
- Patients with neurogenic bladder,
- Patients with urethral stricture

A thorough history was taken in all the cases and detailed general and systemic examination was be carried out. Patient's educational status was noted. Serum prostate-specific antigen assay and ultrasonography was done in all the cases to measure the prostrate size and residual urine volume.

All the patients completed the IPSS and VPSS questionnaire. The patients who were unable to complete the questionnaire on their own were assisted by a reliable relative or doctor. Time taken to fill questionnaire was note in seconds.

IPSS included 7 questions regarding symptoms. The degree of severity of symptoms was noted from 0 to 5. The maximum score in the IPSS is 35. The symptoms were classified into:

I. Mildly symptomatic: 1 to 7
II. Moderately symptomatic: 8 to 19
III. Severely symptomatic: 20 to 35.

A separate question for QoL was also present in the IPSS questionnaire, and the degree of impairment of QoL was noted from 0 to 6.

VPSS included four pictograms to evaluate the symptoms of BPH. The degree of severity of these symptoms ranged from 1 to 5 for urinary

stream and from 0 to 6 for day and night time frequency. Maximum score on VPSS is 17 and the symptoms were divided into three categories:

I. Mildly symptomatic: <3

II. Moderately symptomatic: 4-9

III. Severely symptomatic: 10-17.

Need for assistance and time to fill score system was noted.

The urodynamic study was performed on all the patients with a uroflowmetery. Two parameters of uroflowmetry measured were:

I. Qmax, i.e., maximum urine flow rate expressed in ml/s

II. Qavg, i.e., average urine flow rate expressed in ml/s.

The IPSS total score and VPSS total score was analyzed with these two urodynamic parameters, and their efficacy to quantify the symptoms of LUTS in BPH were compared using these two parameters.

**STATISTICAL ANALYSIS**

Data were described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. Comparison of quantitative variables between the study groups was done using Student t-test. For comparing categorical data, Chi square ($\chi 2$) test was performed and exact test was used when the expected frequency is less than 5.Pearson Correlation was used. A probability value (p value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

## OBSERVATION & RESULTS

This prospective study was conducted in Department of Urology, Dayanand Medical College & Hospital, Ludhiana. A total of 94 patients were enrolled who had had LUTS. 94 patients from IPD & OPD who fulfilled the inclusion criteria and gave consent for this study were enrolled.

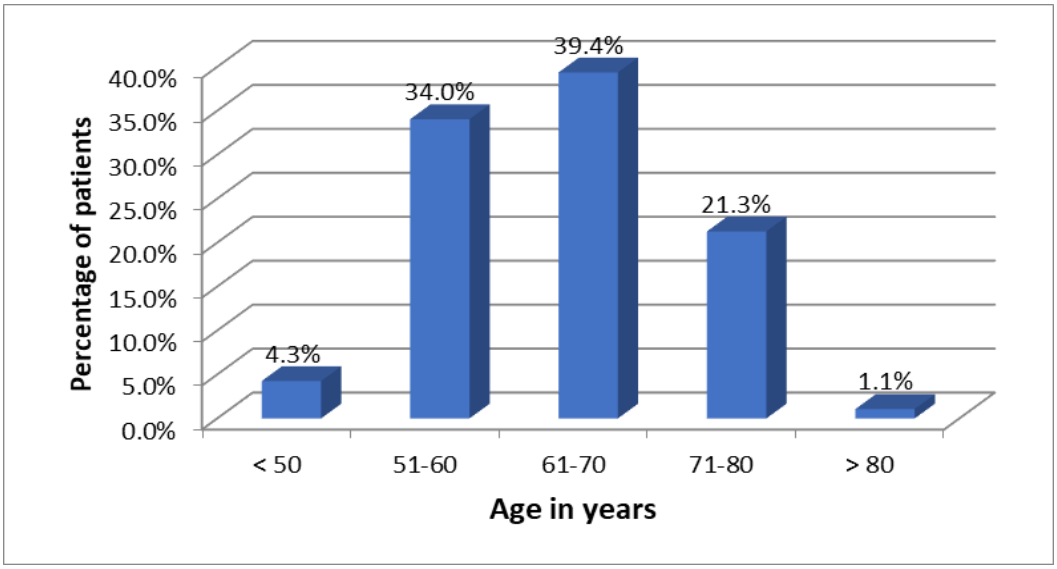
**AGE**

Patients above 40 years of age were enrolled in study. Out of total 94 patients more than one-third (n=37, 39.4%) were in 7$^{th}$ decade of life followed by 34% in age group of 51-60 years. Octogenarians were the smallest group in our study with only one 1(1.1%) patient above 80 years of age.

**Table 1: Age distribution of patients**

| Age | No. of cases (n) | Percentage (%) |
|---|---|---|
| < 50 | 4 | 4.2 |
| 51-60 | 32 | 34.0 |
| 61-70 | 37 | 39.4 |
| 71-80 | 20 | 21.3 |
| > 80 | 1 | 1.1 |
| **Total** | **94** | **100.0** |

**Figure 3: Bar chart showing age distribution of patients**



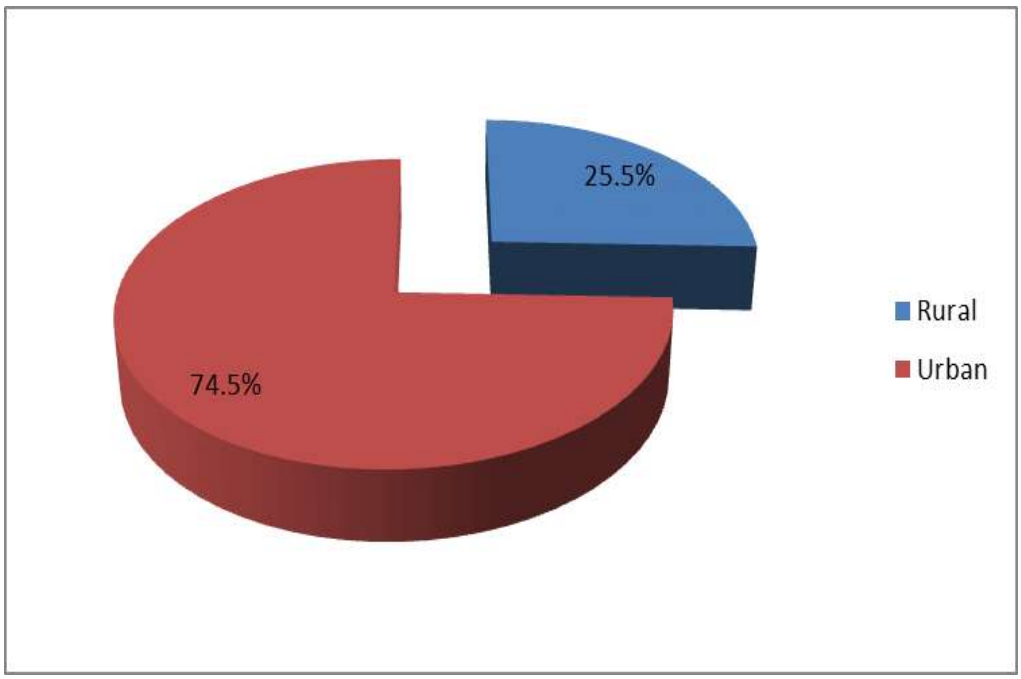
**Place of residence**

Majority of patients (74.5%) were from urban areas and 25.5% were from rural area

**Table 2: Distribution according to place of residence**

| Place of residence | No. of cases(n) | Percentage |
|---|---|---|
| Rural | 24 | 25.5% |
| Urban | 70 | 74.5% |
| **Total** | **94** | **100.0%** |

**Figure 4: Pie chart showing distribution according to place residence**



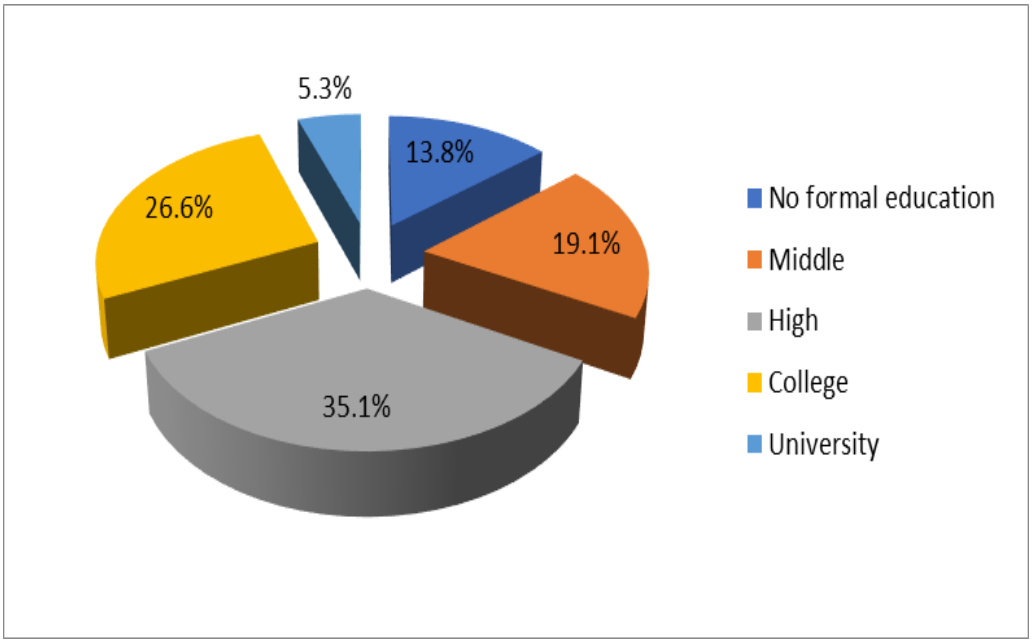
**Educational status**

Out of our sample population, 35% patients were educated up to high school, while 26% had college level education. Only a small minority of 5.3% had university level education. Thirteen individuals (13.8%) had received no education at all. Education status was relevant for the filling up of scoring system.

**Table 3: Educational status**

| Education | No. of cases(n) | Percentage (%) |
|---|---|---|
| No formal education | 13 | 13.8 |
| Middle School | 18 | 19.1 |
| High School | 33 | 35.2 |
| College/ graduate | 25 | 26.6 |
| Post graduate | 5 | 5.3 |
| **Total** | **94** | **100.0** |

**Figure 5: Pie chart showing education status**



**Clinical Presentation**

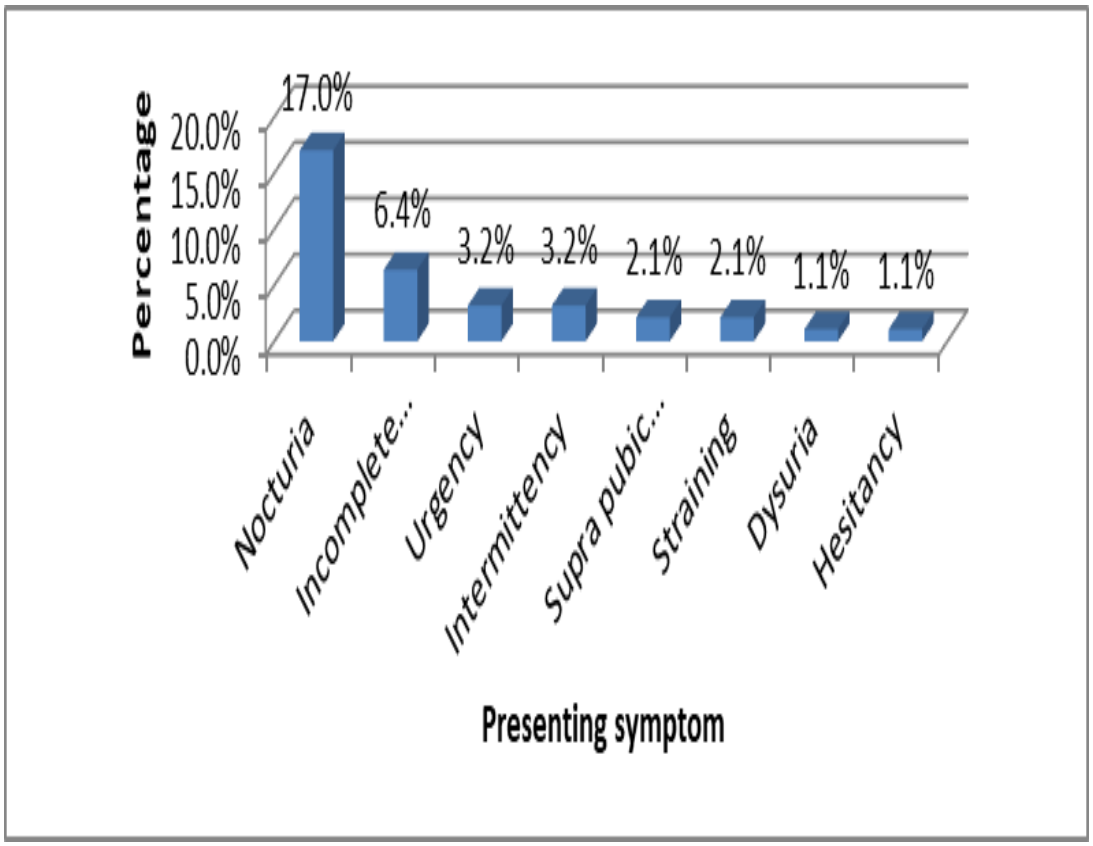
The most frequent clinical symptom at presentation was increased urinary frequency, seen in 44 (46.8%) patients followed by complaints about weak urinary stream in 28.7% patients and nocturia in 17.0%. Other obstructive and storage symptoms were rare. One patient presented with dysuria and two with supra pubic discomfort.

**Table 4: Presenting symptom (n=94)**

| **Presentation** | **No. of cases(n)** | **Percentage(%)** |
|---|---|---|
| Increased frequency | 44 | 46.8 |
| Weak urinary stream | 27 | 28.7% |
| Nocturia | 16 | 17.0% |
| Incomplete emptying of bladder | 6 | 6.4% |
| Urgency | 3 | 3.2% |
| Intermittency | 3 | 3.2% |
| Supra pubic discomfort | 2 | 2.1% |
| Straining | 2 | 2.1% |
| Dysuria | 1 | 1.1% |
| Hesitancy | 1 | 1.1% |

Bar chart showing presenting symptoms

**Figure 6: Bar chart showing presenting symptom**



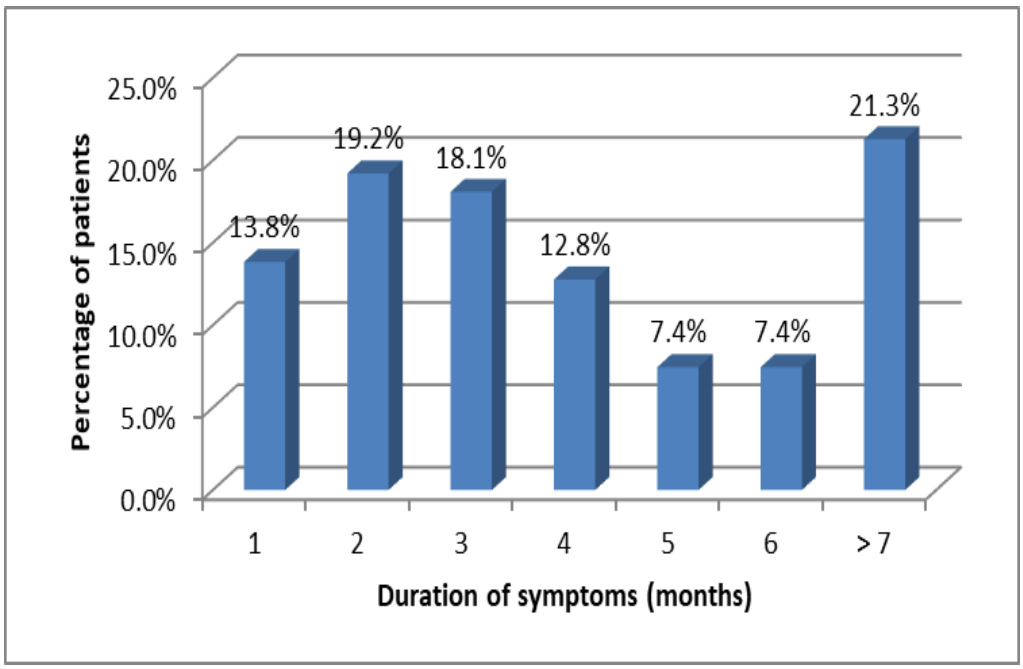
**Duration of symptoms**

Just over one-fifth of our patients (21.3%) had symptoms for more than 7 months, followed by 19% patients with symptoms lasting less than 2 months of duration before they presented to hospital. Only 13.8% patients presented within one month of symptom duration.

**Table 5: Duration of symptoms**

| Duration of Symptoms (months) | No. of cases (n) | Percentage (%) |
|---|---|---|
| 1 | 13 | 13.8 |
| 2 | 18 | 19.2 |
| 3 | 17 | 18.1 |
| 4 | 12 | 12.8 |
| 5 | 7 | 7.4 |
| 6 | 7 | 7.4 |
| ≥ 7 | 20 | 21.3 |
| **Total** | **94** | **100** |

**Figure 7: Bar chart showing duration of symptoms**



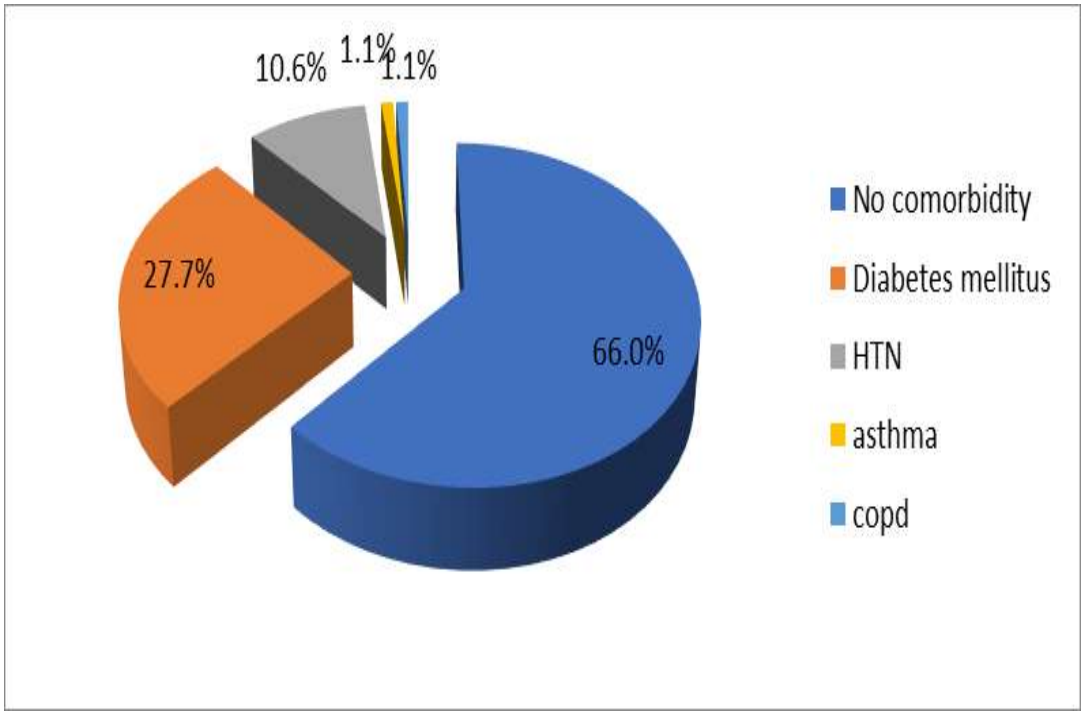
**Risk factors**

Among 94 patients 26 (27.7%) of patients had diabetes, 10 had hypertension and one had COPD and one had bronchial asthma.

**Table 6: Comorbidities**

| Comorbidity | No. of cases (n) | Percentage (%) |
|---|---|---|
| **Diabetes Mellitus** | 26 | 27.7 |
| **Hypertension** | 10 | 10.6 |
| **Asthma** | 1 | 1.1 |
| **COPD** | 1 | 1.1 |
| **No Comorbidity** | 62 | 69.5 |

**Figure 8**: **Pie chart for comorbidities**



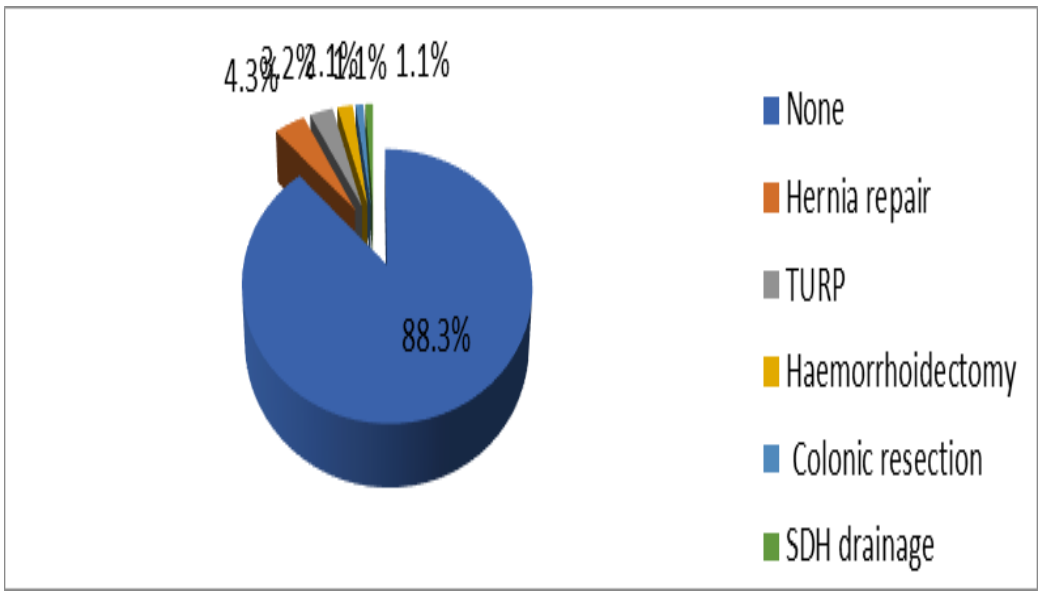
**History of any previous surgery**

A majority of our patients (88.3%) had not undergone any previous surgery. Among the patients with prior surgery, the most common surgery was hernia repair (4.3%) followed by TURP (3.2%) patients.

**Table 7: History of previous surgery**

| History of surgical procedure | No. of cases (n) | Percentage (%) |
|---|---|---|
| None | 83 | 88.2 |
| Hernia repair | 4 | 4.3 |
| TURP | 3 | 3.2 |
| Haemorrhoidectomy | 2 | 2.1 |
| Colonic resection for intussuseptio | 1 | 1.1 |
| SDH drainage | 3 | 1.1 |
| **Total** | **94** | **100.0** |

**Figure 9: History of previous surgery**



**Laboratory investigations:**

Among the haematological investigations mean haemoglobin was observed to be 12.27 gm/dl with a range varying from 8-15 gm. Total leukocyte count varied from 4 $x10^3$/dl to 14 $x10^3$/dl and one IPD patient had TLC count of 27 ($10^3$ per dl), mean was 7.8$x10^3$/dl±2.9. There was very wide range observed for platelet count i.e 78 $x10^3$/dl to 328 $x10^3$/dl and one IPD having 610 $x10^3$/dl with a mean of 207.1 $x10^3$/dl

Among the renal function test observed, the level of urea varied between 3 to 31 mg/dl with a mean of 32.5 and the serum creatinine (mg/dl) level varied from minimum of 0.6 to maximum was 2.8 with a mean value of 0.92±0.32.

**Table 8: Laboratory investigations**

| Blood investigations | Range | Mean ± SD |
|---|---|---|
| Haemogobin (gm/dl) | 8-15 | 12.27±1.7 |
| TLC ($10^3$/dl) | 4-27 | 7.87±2.9 |
| Platelet count ($10^3$/dl) | 78-610 | 207.12±68.9 |
| Urea (mg/dl) | 13-81 | 32.56±11.9 |
| Creatinine (mg/dl) | 0.6-2.8 | 0.92±0.32 |

**Ultrasound findings:**

USG findings suggest that the minimum size of the prostrate was 11 gms and maximum was 120 gm with an average of 39.8 gm. The other finding observed was volume of urine prevoid and postvoid which varied from 93-900 ml and 0 to 600 ml respectively. The mean±SD post voidal residual volume was around 70±96.9 ml.

**Table 9: Ultrasound findings**

| USG finding | Range | Mean± Std. Deviation |
|---|---|---|
| Prostate size (gm) | 11-120 | 39.8±20.23 |
| Prevoid volume (ml) | 93-900 | 289.72±117.627 |
| Postvoid residual urine (ml) | 0-600 | 70.48±96.937 |

**Prostate Specific Antigen:**

In our study enrolled patients had mean(±SD) value of PSA of 3.14(±7.12) ng/dl and values ranged from 0.44 to 48 ng/dl.

**Uroflowmetery results:**

The Qmax observed varied from 3 ml/sec to 27 ml/sec with an average of 11.5 ml/sec and Qaverage was from 2ml/sec to 147 ml/sec. Time to peak was observed to be 19.62 seconds on an average and the voided volume and time was 234 ml and 65 seconds respectively. The flow time varied from 12-415 seconds showing a very wide range.

**Table 10: Uroflowmetery results**

| **Uroflowmetery parameters** | **Range** | **Mean ± SD** |
|---|---|---|
| Qmax (ml/sec) | 3-27 | 11.51±5.122 |
| Time to peak (sec) | 1-136 | 19.62±21.907 |
| Voided volume (ml) | 131-548 | 234.09±88.820 |
| Flow time (sec) | 12-415 | 50.77±42.650 |
| Voiding time (sec) | 17-417 | 65.03±49.106 |
| Qaverage (ml/sec) | 2-16 | 5.6±2.6 |

**IPSS questionnaire**

Forty-four patients of our patients did not complain of incomplete emptying while only 6 patients complained of incomplete emptying 'almost always'. Twenty seven of the patients complained of increased frequency less than half the time while 19 patients suffered increased frequency more than half the time.

Forty one patients said they never experience intermittent voiding, and the same number of patients denied having suffered urgency (41 patients).

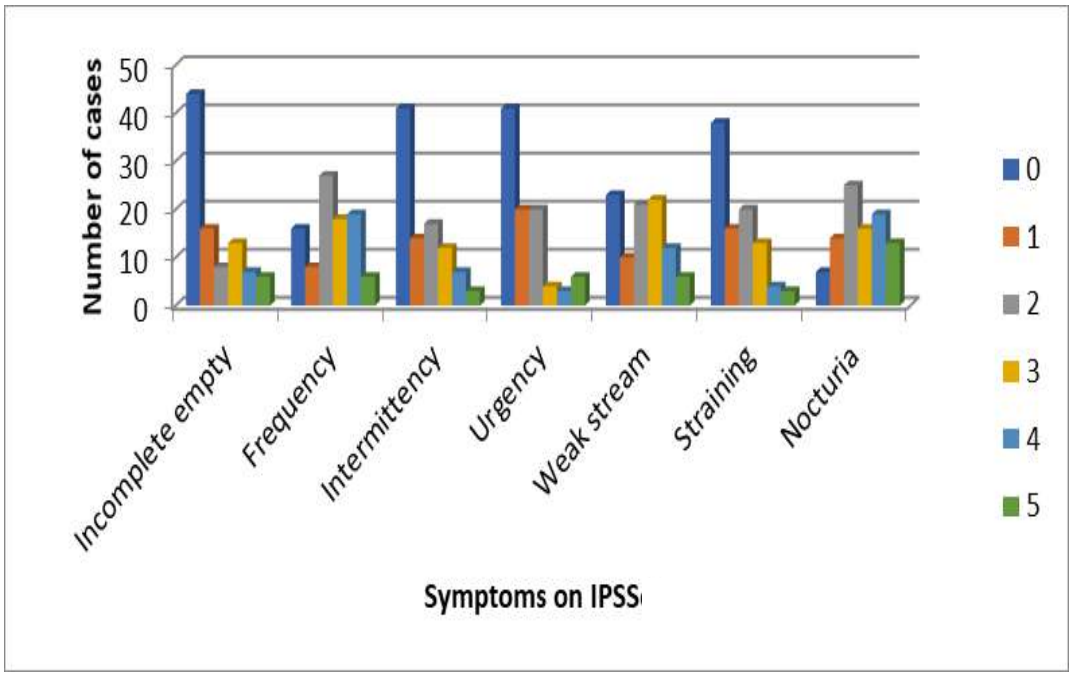
Weak stream troubled majority of our patients, while only 23 said they never endured weak stream. Twenty one patients complained of weak stream less than half the time, while 22 had weak stream about half the time and 12 had more than half the time for last one month.

Straining was seen to have varied severity in 56 patients whereas 38 patients reported to be free of the symptom. For past one month nocturia was seen in 25 patients for less than half the time, 16 had for half the time, 19 had for more than half the time and 13 had almost always.

**Table 11: IPSS questionnaire**

| **IPSS questionnaire symptoms** | **Severity of symptoms** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **0** | **1** | **2** | **3** | **4** | **5** | |
| | **Not at all (n)** | **Less than 1 time in 5 (n)** | **Less than half the time** | **About half the time (n)** | **More than half the time** | **Almost always (n)** | **Total (n)** |
| Incomplete empty | 44 | 16 | 8 | 13 | 7 | 6 | **94** |
| Frequency | 16 | 8 | 27 | 18 | 19 | 6 | **94** |
| Intermittency | 41 | 14 | 17 | 12 | 7 | 3 | **94** |
| Urgency | 41 | 20 | 20 | 4 | 3 | 6 | **94** |
| Weak stream | 23 | 10 | 21 | 22 | 12 | 6 | **94** |
| Straining | 38 | 16 | 20 | 13 | 4 | 3 | **94** |
| Nocturia | 7 | 14 | 25 | 16 | 19 | 13 | **94** |

**Figure 10: Bar chart showing IPSS questionnaire**



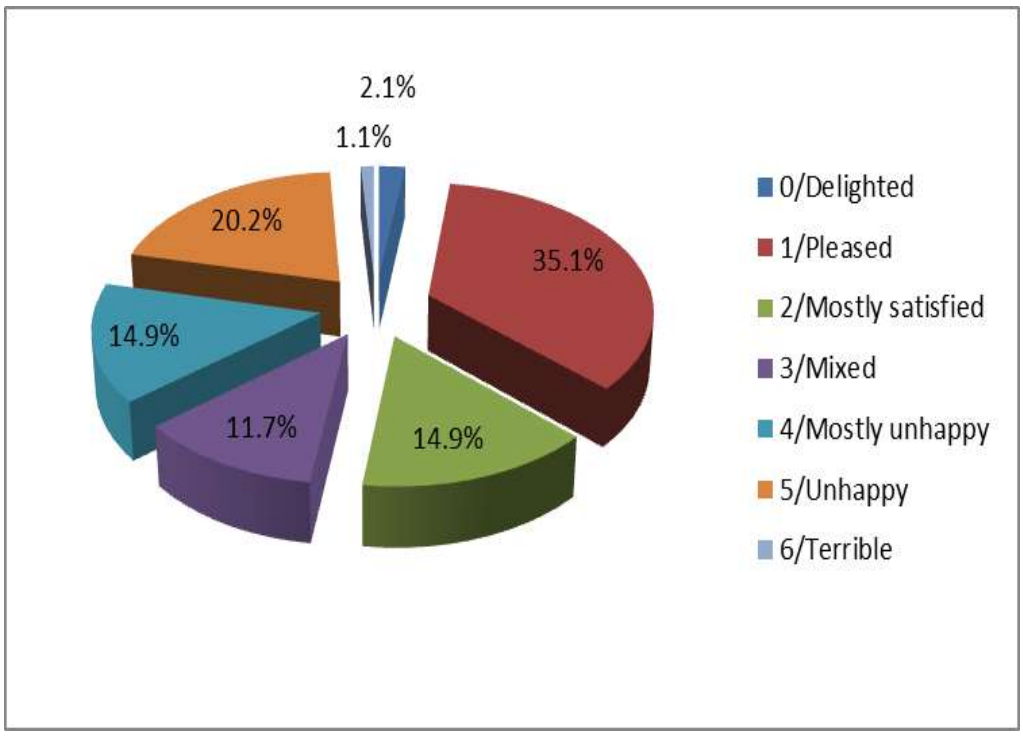
**Quality of life in IPSS**

Over one-third of patients (35.1%) were pleased with their quality of life according to IPSS scoring system and 14.9% patients were mostly satisfied though a similar percentage reported to be unhappy. Only 1% patients were in terrible situation as per IPSS score collected.

**Table 12: Quality of life in IPSS**

| QoL in IPSS | No. of cases (n) | Percentage (%) |
|---|---|---|
| Delighted (0) | 2 | 2.1 |
| Pleased (1) | 33 | 35.1 |
| Mostly satisfied (2) | 14 | 14.9 |
| Mixed (3) | 11 | 11.7 |
| Mostly unhappy (4) | 14 | 14.9 |
| Unhappy (5) | 19 | 20.2 |
| 6/Terrible | 1 | 1.1 |
| **Total** | **94** | **100.0** |

**Figure 11: Pie chart showing quality of life in IPSS**



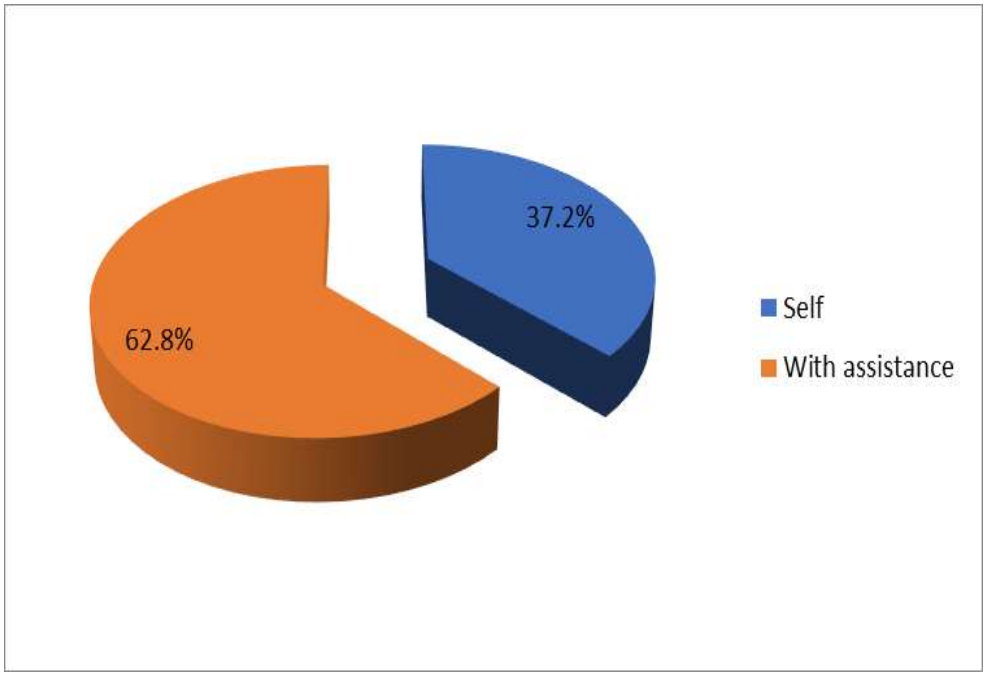
**Filling of IPSS**

Only 37.2% patients were able to fill the IPSS score by themselves, while as 62.8% required assistance.

**Table 13: showing requirement of assistance for answering IPSS questionnaire**

| IPSS filling | No. of cases (n) | Percentage (%) |
|---|---|---|
| Self | 35 | 37.2 |
| With assistance | 59 | 62.8 |
| **Total** | **94** | **100.0** |

**Figure 12: Pie chart showing requirement of assistance for answering IPSS questionnaire**



**IPSS score and time taken to fill**

The IPSS score ranged from 1 to 33 and mean±SD score obtained was 12.4±6.4. The time taken to fill this questionnaire on an average was 172.5 seconds with quickest being 90 seconds to maximum up to 490 seconds.

**Table 14: IPSS score and time taken to answer questionnaire**

| **IPSS score and time taken to answer questionnaire** | **Range** | **Mean±SD** |
|---|---|---|
| IPSS Score | 1-33 | 12.41±6.4 |
| IPSS time taken to fill in seconds | 90-490 | 172.50±75 |

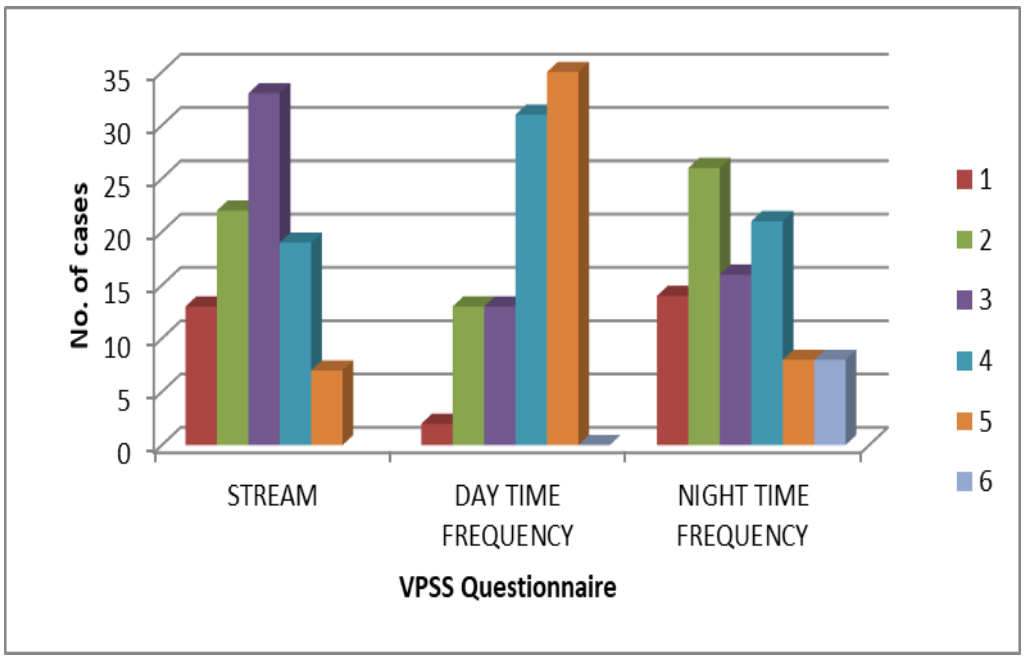
**VPSS questionnaire**

The score for stream varied from 1 to 5 and thirty-three patients (33) had score of 3. The day time frequency score was 5 in 35 patients while night time frequency score was 5 in only 8 patients. In terms of night time frequency, 26 patients had a score of 2.

**Table 15: VPSS questionnaire severity**

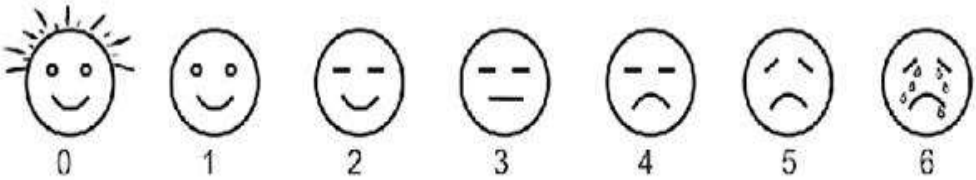
| VPSS questionnaire | Severity of symptom | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Stream(n) | 13 | 22 | 33 | 19 | 7 | NA |
| Day time frequency(n) | 2 | 13 | 13 | 31 | 35 | 0 |
| Night time frequency(n) | 15 | 26 | 16 | 21 | 8 | 8 |

**Figure 13: VPSS questionnaire severity**



**Quality of life in VPSS**

Pictogram using various faces were used to evaluate QOL in VPSS

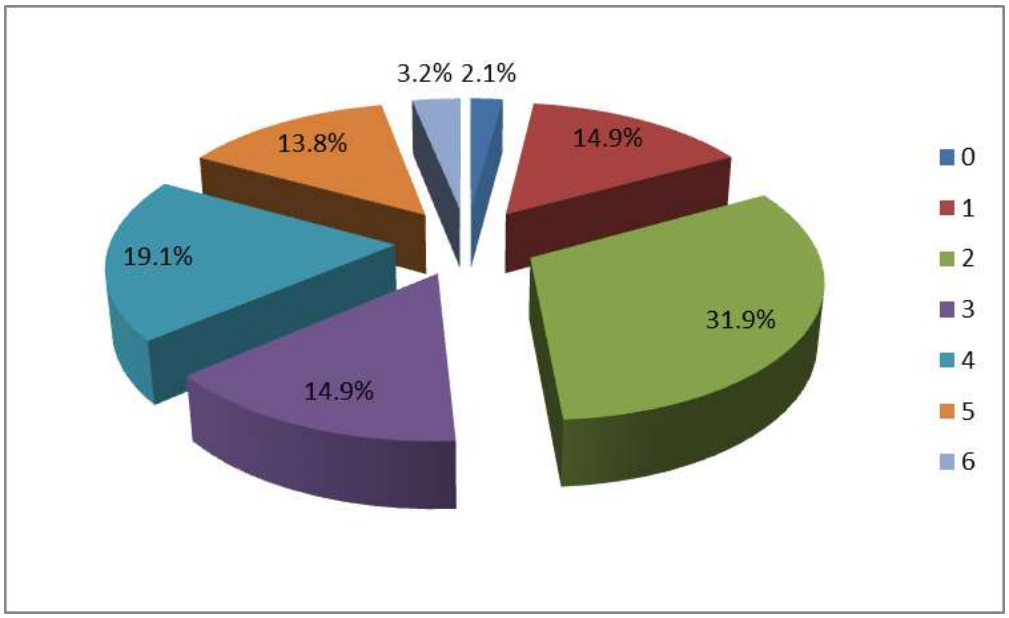



In our study, 30 patients marked 2 whereas 14 marked 1 and other 14 patients marked for 3.

**Table 16: Quality of life in VPSS**

| VPSS_QOL | No. of cases (n) | Percentage (%) |
|---|---|---|
| 0 | 2 | 2.1 |
| 1 | 14 | 14.9 |
| 2 | 30 | 31.9 |
| 3 | 14 | 14.9 |
| 4 | 18 | 19.1 |
| 5 | 13 | 13.8 |
| 6 | 3 | 3.2 |
| **Total** | **94** | **100.0** |

**14: Pie chart showing quality of life in VPSS**



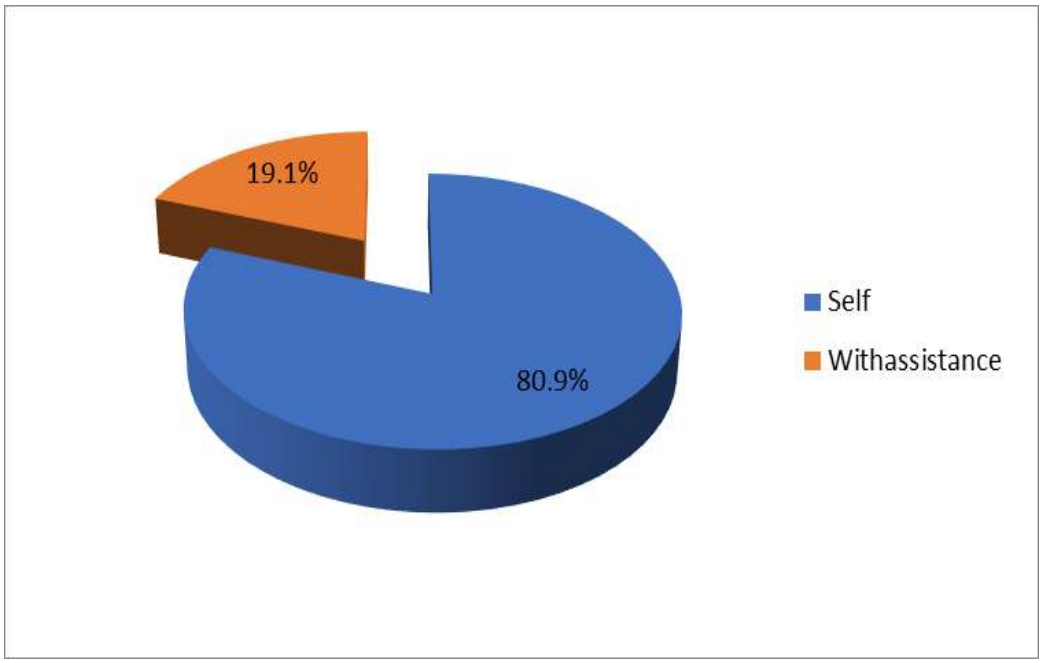
**VPSS filled by**

Majority of the patients (80.9%) were able to fill the scoring by themselves and only around 14 % patients required assistance.

**Table 17: showing requirement of assistance for answering VPSS questionnaire**

| VPSS filled by | No. of cases (n) | Percentage (%) |
|---|---|---|
| Self | 76 | 80.9% |
| with assistance | 18 | 19.1% |
| **Total** | **94** | **100.0%** |

**Figure 15: Pie chart showing requirement of assistance for answering VPSS questionnaire**



**VPSS score and time taken to fill**

VPSS score varied from 5 to 17 with mean±SD of 10.78±2.6. The mean±SD time it took to fill up the scoring system was observed to be 58.7±34.3 seconds

**Table 18: VPSS score and time taken to fill**

| **VPSS score and time taken to fill** | **Range** | **Mean** ± SD |
|---|---|---|
| VPSS Score | 5-17 | 10.78±2.6 |
| VPSS time taken to fill (seconds) | 20-170 | 58.73±34.3 |

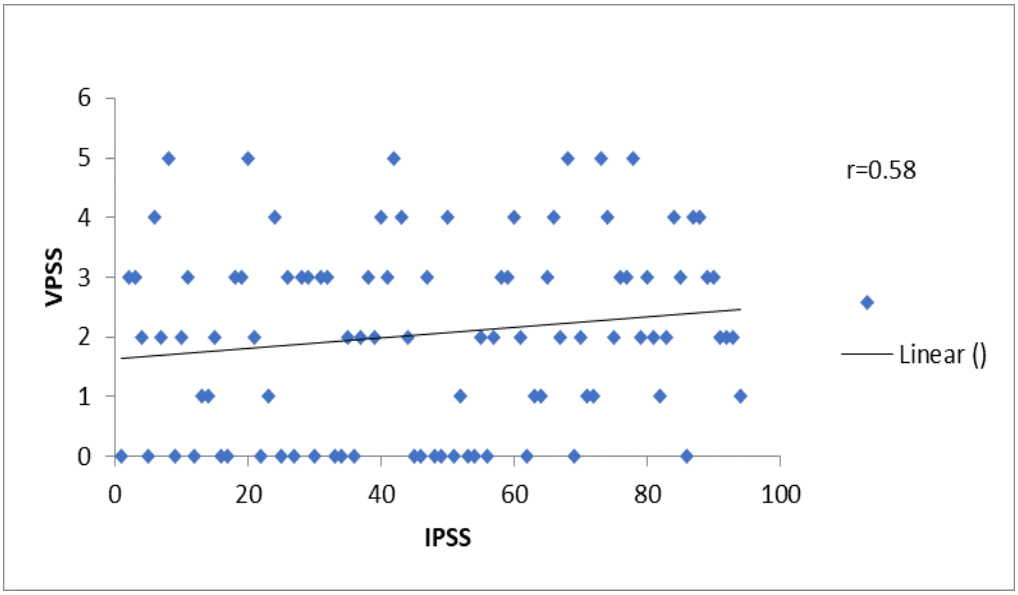
**Correlation between IPSS and VPSS**

A highly significant correlation was found between IPSS and VPSS (r 0.583, P 0.00) for quantify LUTS

**Table 19 Correlation between IPSS and VPSS**

| | | IPSS score | VPSS Score |
|---|---|---|---|
| IPSS score | Pearson Correlation | 1.000 | 0.583 |
| | p-value | | 0.000 |
| VPSS score | Pearson Correlation | 0.583 | 1.000 |
| | p-value | 0.000 | |

**Figure 16, Graph showing correlation between IPSS and VPSS**



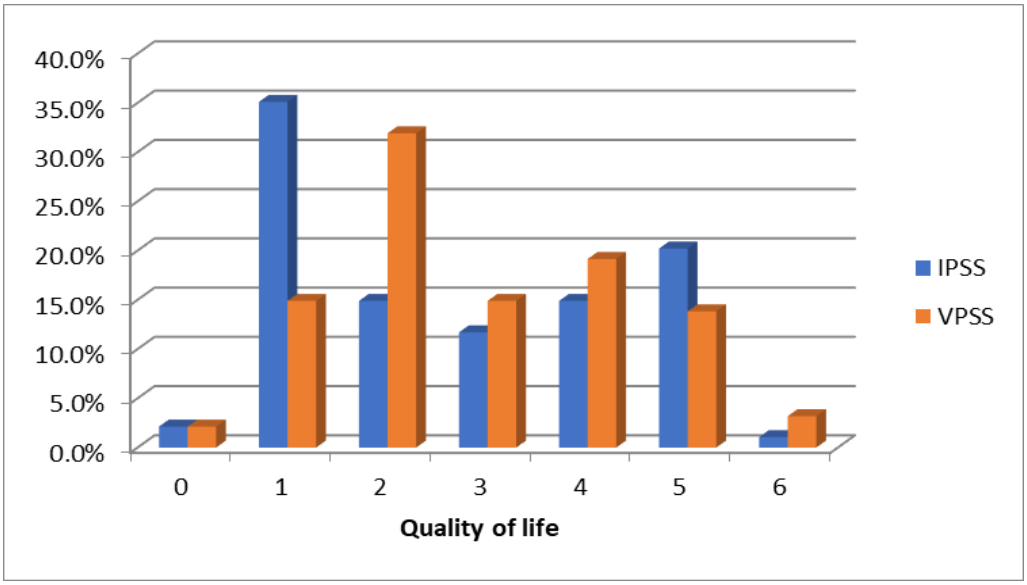
**Comparison of QOL in IPSS and VPSS**

A significant correlation was found for QoL between the two-scoring system used. Almost same percentage of patients fell into score 0 and slight difference was seen with score 3, 4, 6. In IPSS scoring 35% patients had score of 1 and in VPSS 31.9% patients had score of 2.

**Table 20: Comparison of QOL in IPSS and VPSS**

| QoL | IPSS | | VPSS | | McNemar-Bowker Test | p-value |
|---|---|---|---|---|---|---|
| | No. of cases (n) | Percentage (%) | No. of cases (n) | Percentage (%) | | |
| **0** | 2 | 2.1 | 2 | 2.1 | 32.153 | 0.001 |
| **1** | 33 | 35.1 | 14 | 14.9 | | |
| **2** | 14 | 14.9 | 30 | 31.9 | | |
| **3** | 11 | 11.7 | 14 | 14.9 | | |
| **4** | 14 | 14.9 | 18 | 19.2 | | |
| **5** | 19 | 20.2 | 13 | 13.8 | | |
| **6** | 1 | 1.1 | 3 | 3.2 | | |
| **Total** | 94 | 100.0 | 94 | 100.0 | | |

**Figure 17: Graph showing Comparison of QOL in IPSS and VPSS**

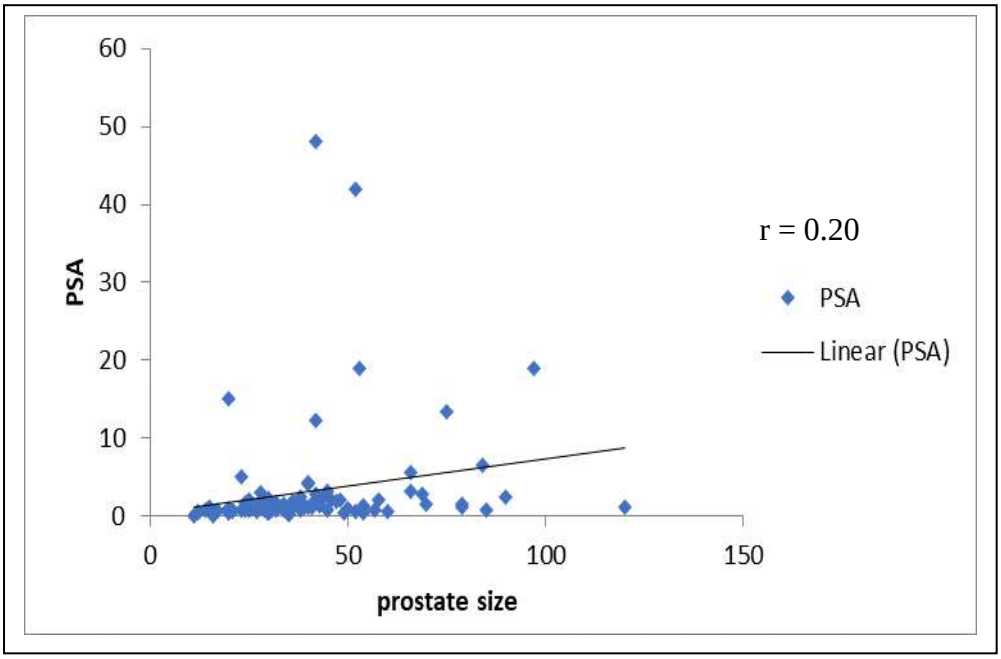


No significant correlation was found between size of prostrate and levels of PSA.

**Table 21: Correlation of PSA with prostate size**

| | | **Prostate size** |
|---|---|---|
| **PSA** | Pearson Correlation | 0.200 |
| | p-value | 0.053 |

**Figure 18: Graph showing correlation of PSA with prostate size**



**Comparison of IPSS and VPSS in terms of time, score.**

The time taken to fill IPSS scoring was far more than VPSS. The average score of IPSS observed was 12.4 as compared to VPSS where it was 10.78. Quality of life scores were very similar in both scoring systems.

**Table 22: Comparison of IPSS and VPSS in terms of time**

| | IPSS | VPSS |
|---|---|---|
| Mean time taken (±SD) (seconds) | 172.50(±75) | 58.73(±34.3) |
| Mean score (±SD) | 12.41(±6.4) | 10.78(±2.6) |

**Figure 19: Bar chart showing comparison of IPSS and VPSS in terms of score**

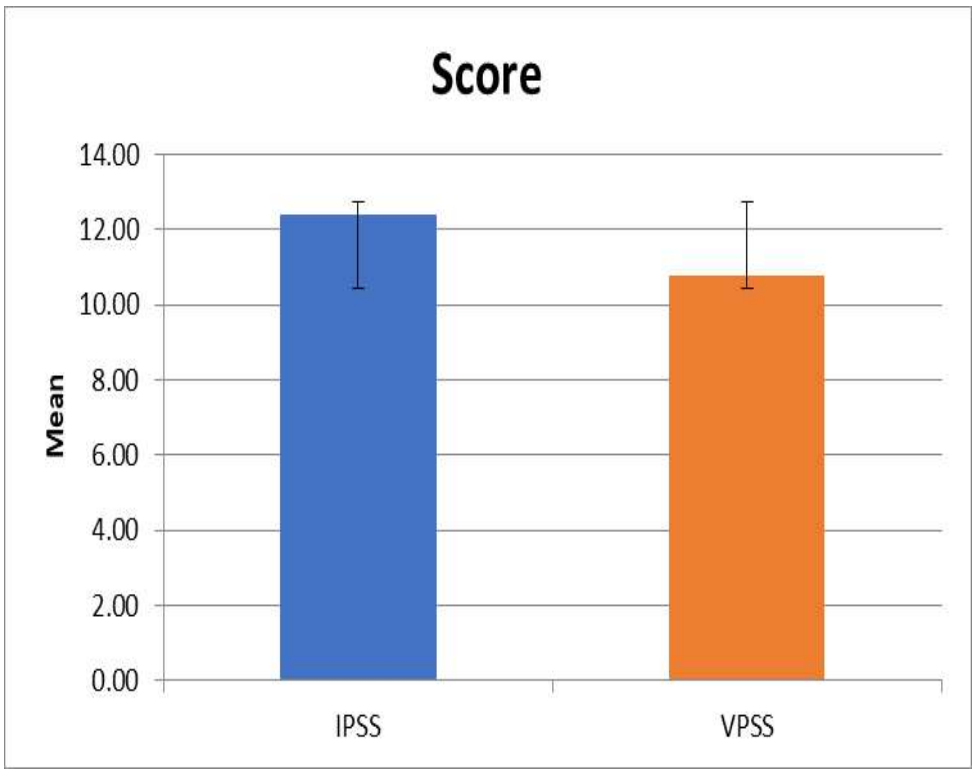
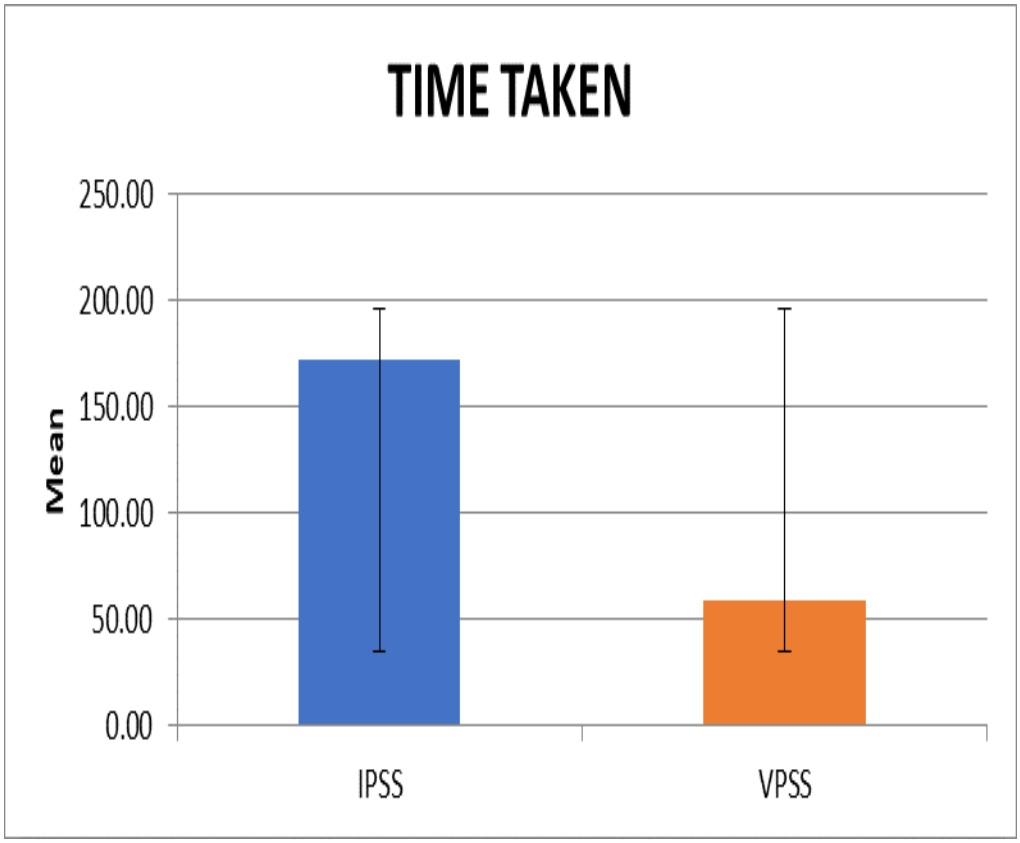


**Figure 20: Bar chart showing comparison of IPSS and VPSS in terms of Time**



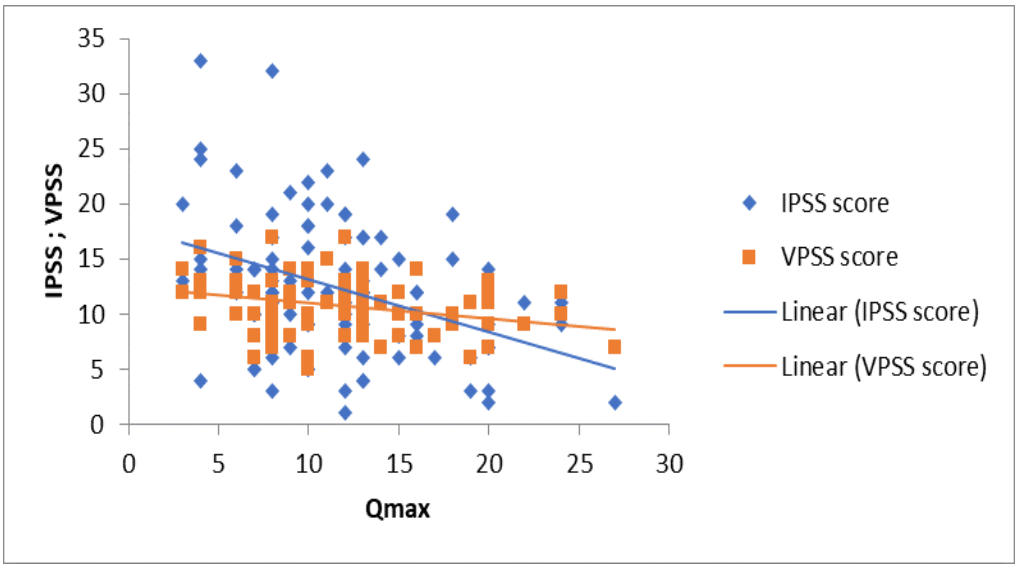
**Correlation of IPSS and VPSS with Qmax, Q average**

The Qmax and Qavg were observed to be significantly correlated with both IPSS and VPSS.

**Table 23: Correlation of IPSS and VPSS with Qmax, Q average**

| | | Qmax | Qavg | IPSS score | VPSS SCORE |
|---|---|---|---|---|---|
| IPSS score | Pearson Correlation | -0.375 | -0.040 | 1.000 | 0.583 |
| | p-value | 0.000 | 0.000 | | 0.000 |
| VPSS score | Pearson Correlation | -0.277 | -0.070 | 0.583 | 1.000 |
| | p-value | 0.007 | 0.003 | 0.000 | |

**Figure 21: Graph showing correlation of IPSS and VPSS with Qmax**



**Correlation of IPSS and VPSS with PSA**

No statistically significant correlation was observed in the values of PSA with respect to IPSS and VPSS scoring.

**Table 24: Correlation of IPSS and VPSS with PSA**

| | | PSA | IPSS score | VPSS score |
|---|---|---|---|---|
| IPSS score | Pearson Correlation | 0.130 | 1.000 | 0.583 |
| | p-value | 0.210 | | 0.000 |
| VPSS score | Pearson Correlation | 0.107 | 0.583 | 1.000 |
| | p-value | 0.306 | 0.000 | |

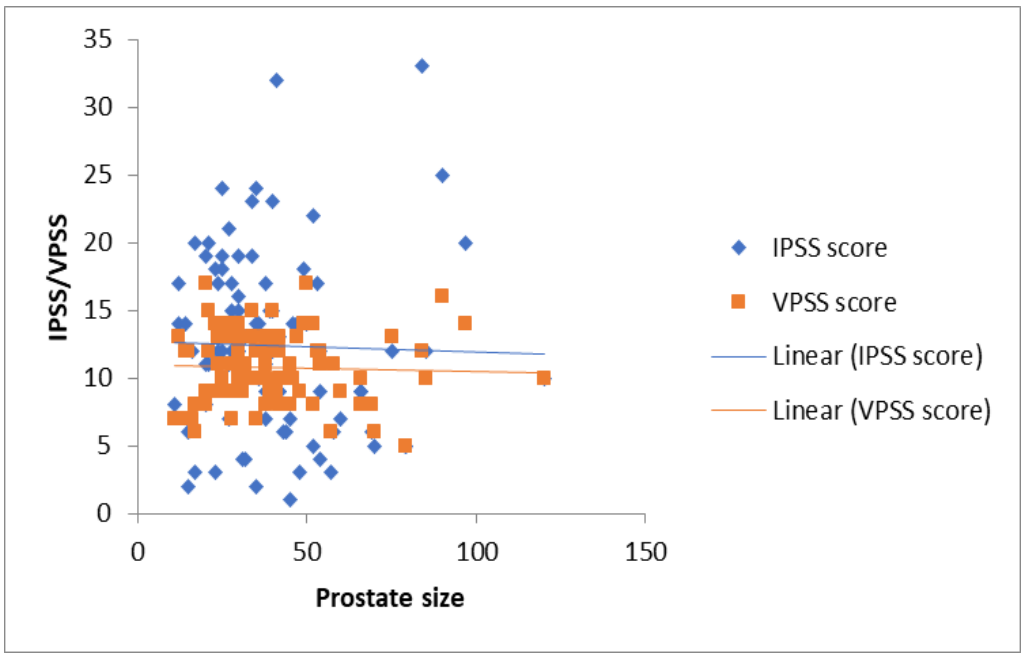
**Correlation of IPSS and VPSS with prostate**

No statistically significant correlation was observed with the size of the prostate with respect to IPSS and VPSS scoring.

**Table 25: Correlation of IPSS and VPSS with prostate**

| | | Prostate Size | IPSS score | VPSS Score |
|---|---|---|---|---|
| IPSS score | Pearson Correlation | -0.025 | 1.000 | 0.583 |
| | p-value | 0.808 | | 0.000 |
| VPSS score | Pearson Correlation | -0.039 | 0.583 | 1.000 |
| | p-value | 0.710 | 0.000 | |

**Figure 22, Graph showing correlation of IPSS and VPSS with prostate size**



**Correlation of prostate size and PSA with Q-max, Q-average**

The prostrate size had no significant correlation with the Q average or with IPSS and VPSS scoring and similarly prostate specific antigen failed to show a significant correlation with these parameters. The only significant correlation was between prostate size and Q max (p value 0.023)

**Table 26: Correlation of prostate size and PSA with Qmax, Qaverage**

| | | **Prostate Size** | **PSA** | **Qmax** | **Qave** | **ipss score** | **VPSS score** |
|---|---|---|---|---|---|---|---|
| Prostate Size in gm | Pearson Correlation | 1.000 | 0.200 | -0.235 | -0.069 | -0.025 | -0.039 |
| | p-value | | 0.053 | 0.023 | 0.506 | 0.808 | 0.710 |
| PSA | Pearson Correlation | 0.200 | 1.000 | -0.043 | -0.030 | 0.130 | 0.107 |
| | p-value | 0.053 | | 0.679 | 0.771 | 0.210 | 0.306 |

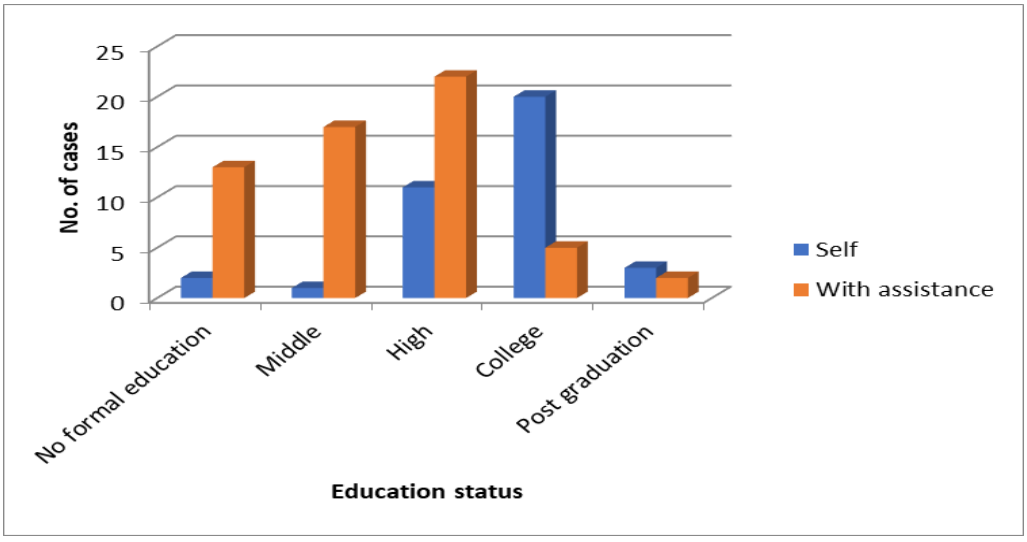
**Effect of education on answering IPSS questionnaire**

We observed a significant (p value=.001) correlation of filling of scoring system with education level of the patient. Patients who had education level of at least high school and above i.e. up to college or post graduate level were able to fill up scoring system, but patients who had studied up to middle school or had no formal education needed assistance or their treating physician had to fill the scoring.

**Table 27: Effect of education on answering IPSS questionnaire**

| | | IPSS_filled by | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|
| | | Self (n) | With assistance (n) | | | |
| **Education status** | No formal education | 0 | 13 | 13 | 77.891 | 0.001 |
| | Middle School | 1 | 17 | 18 | | |
| | High School | 11 | 22 | 33 | | |
| | College | 20 | 5 | 25 | | |
| | Post graduate | 3 | 2 | 5 | | |
| **Total** | | **35** | **23** | **94** | | |

**Figure 23: Bar chart showing effect of education on answering IPSS questionnaire**



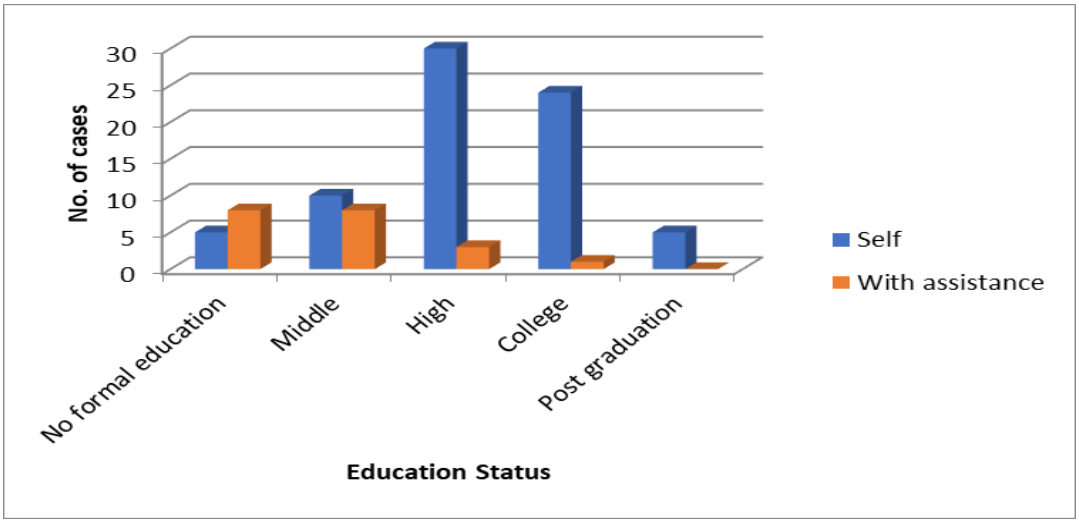
**Effect of education on answering VPSS questionnaire**

We observed significant (p value=0.001) correlation of filling of VPSS scoring system with education level of the patient. Patients with at least a high school level of education or above were able to fill up their scoring, but patients who had studied up to middle school or had no formal education needed assistance.

**Table 28: Effect of education on filling VPSS questionnaire**

| Effect of education on filling VPSS questionnaire | | VPSS filled by | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|
| | | Self (n) | with assistance (n) | | | |
| **Education** | No formal education | 5 | 8 | 13 | 77.891 | 0.001 |
| | Middle School | 10 | 8 | 18 | | |
| | High School | 30 | 3 | 33 | | |
| | College | 24 | 1 | 25 | | |
| | Post graduate | 5 | 0 | 5 | | |
| **Total** | | **76** | **18** | **94** | | |

**Figure 24: Bar chart showing effect of education on answering VPSS questionnaire**



# DISCUSSION

This prospective study was conducted in Department of Urology, Dayanand Medical College & Hospital, Ludhiana to study Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms. This study compared IPSS with VPSS in terms of convenience to fill questionnaire, time taken, assistance need, effect of education and correlation of IPSS and VPSS with uroflowmetery parameters, PSA and prostate size.

**Age distribution**

Patient above 40 years of age were enrolled in study and among them 39.4% were in 7$^{th}$ decade of life and 34% in 6$^{th}$decade. LUTS are common after 40 years of age and incidence increases with increase in age[49]. In our study age ranged from 45 to 81years with mean of 63.8years. These results are comparable with other studies as shown in table below.

**Table 29: Age comparison in various studies**

| | Our study | Els *et al*[16] | Taneja *et al*[28] | Putra *et al*[6] | Lyn *et al*[31] | Ceylan *et al*[43] |
|---|---|---|---|---|---|---|
| **Mean age** | 63.8 | 65 | 66 | 67 | 61 | 62.8 |
| **Range** | 45-81 | 41-85 | 44-79 | 45-101 | 28-93 | 43-84 |

**Taneja *et al***[28] conducted study on 121 patients, mean age was found to be 66 years and range was 44 to 79 years, comparable results were also reported by **Ceylan et al**[43] in their study on 191 patients having mean age of 62.8 years and range from 43 to 84 years

From these studies and our study, we can conclude LUTS are more common in elderly age group.

**Education status**

Education status had impact on answering questionnaire in IPSS and VPSS. With increase in education level the need for assistance decreases. In our study 35% patients were educated up to high

school, 26% had college level education and 5.3% had post graduate level education. Almost 13.8% patients had no formal education. Education status was relevant for the filling up of scoring system. In elderly patients' percentage of higher education level was less and more patients needed assistance for answering questionnaire

Our results were comparable with study conducted by Liu et al[47] in China and Gupta et al[22] in Nepal**.** Percentage of higher education was high in study conducted by Putra et al[6] in Indonesia and percentage of patients who needed assistance in filling IPSS and VPSS was less. However, education level in our study differ from other studies as these studies are from other countries, like Chapple et al[49] studied people in China, Taiwan, South Korea Ceylan et al[43] in Turkey.

**Table 30: Educational status comparison**

| **Education** | Our study (%) | Liu *et al*[47] (%) | Chapple *et al*[49] (%) | Gupta et *al*[22] (%) | Putra *et al*[6] | Ceylan *et al*[43] (%) | Els *et al*[16] (%) |
|---|---|---|---|---|---|---|---|
| **Uneducated** | 13.8 | - | - | 25 | 0.4 | - | 3 |
| **Middle School** | 19.1 | - | - | 18 | 3.4 | 51.3 | 31 |
| **High School** | 35.1 | 47.6 | 31.4 | 33 | 36.1 | 31.9 | 66 |
| **College/ graduate** | 26.6 | 47.9 | 62.3 | 22 | 20.2 | 16.8 | 4 |
| **Post graduate** | 5.3 | 4.5 | 6.3 | -- | 40.1 | - | - |

**Clinical Presentation**

Most common symptom was nocturia present in 84% of patients followed by increased urinary frequency, weak stream present in 46.8%, 17% of cases respectively. However, similar observation was made by **Liu *et al***[47] in their study. Other obstructive and irritative symptoms were less common. Two patients came with supra pubic pain and one with dysuria.

**Comorbidities**

Diabetes was present in 27.7% of our patients whereas majority of patients were non diabetic. There is evidence that diabetes effects LUTS.[20,21,29 47] Ten patients had hypertension while one had COPD and other one had asthma.

**History of any previous surgery**

Majority patients (88.3%) had not undergone any surgery prior to presentation in hospital. Out of those who underwent prior surgery most common was hernia repair (4.3%) followed by TURP (3.2%) patients. Among patients who had history of TURP one had residual prostate size of 15gm and was seeking consultation for nocturia, other two had residual prostate around 25gm and came to hospital for weak urinary stream.

**Laboratory investigations**

Among the hematological investigations-mean hemoglobin was observed to be 12.27 gm/dl with a range varying from 8-15gm/dl. TLC count varied from $4x10^3$ /dl to 14 $x10^3$ /dl and one IPD patient had 27 $x10^3$ /dl and mean was 7.87 with a standard deviation of 2.9, patient with high TLC count was under treatment. There was very wide range observed for platelet count i.e 78 $x10^3$ /dl to 610 $x10^3$ /dl with a mean of 207.1 $x10^3$ /dl

Among the renal function test observed level of urea was seen to be varying from 13 to 31 with a mean of 32.5 and serum creatinine level varied from 0.6 to 2.8 with an average value of 0.92. Similar results were seen in study conducted by Gupta et al[22] where average creatinine was 1.06mg/dl with a range from 0.85-1.36mg/dl and standard deviation of 0.11mg/dl

**Prostate size**

USG findings suggest that the minimum size of the prostrate was 11 gm and maximum was 120 gm with an average of 39.8 gm. These findings were consistent with other studies like Gupta et al[22].

**Table 31: Prostate Size comparison**

| | Mean±SD (gm) | Range (gm) |
|---|---|---|
| **Our study** | 39.8±20 | 11-120 |
| **Gupta et al**[[22]] | 48±26 | 27-138 |

The other finding observed was prevoid and postvoid urinary volume which varied from 93 to 900 ml and from 0 to 600 ml respectively. The average post voidal residual volume was around 70 ml. Gupta et al[22] observed PVRU of 76.9ml +- 90 whereas Putra et al[6] found PVRU of 54±68ml in their study.

**Correlation of prostate size and PSA with Qmax, Qaverage, IPSS, VPSS**

The prostrate size had no significant correlation with the PSA, Q average or with IPSS and VPSS scoring. However a significant negative correlation was present between prostate size and Qmax, it may due to confounding factor of age as with aging prostate size increases and peak flow rate decreases or due to BOO caused by larger prostates

**Prostate Specific Antigen values**

Average value of PSA was observed to be 3.14 with minimum of 0.44 and maximum of 48, Ceylan et al[43] observed a mean PSA value of 2.68 whereas Gupta et al[22] found mean PSA value of 1.79. These two studies showed lesser mean PSA values as they had excluded patients having carcinoma prostate.

**Table 32: PSA, comparison with other studies**

| PSA values | Mean | Range |
|---|---|---|
| **Our study** | 3.14 | 0.44-48 |
| **Gupta *et al***[22] | 1.79 | 0.84.3 |
| **Ceylan *et al***[43] | 2.68 | 0.5-3.9 |

**Uroflowmetery results**

The Qmax was observed to be varying from 3 ml/sec to 27 ml/sec with an average of 11.5 ml/sec and Q average varied from 2ml/sec to 16 ml/sec. Putra et al[6] in their study observed a peak flow 13.6ml/sec with standard deviation of 8.6 where as Gupta et al[22] found a Qmax of 10.7ml/sec

**Table 33: comparison of Qmax with other studies**

| Qmax | Our study | Gupta *et al*[22] | Putra *et al*[6] |
|---|---|---|---|
| Mean±SD (ml/Sec) | 11.51+-5.122 | 10.7 | 13.6+- 8.6 |

Time to peak was observed to be 19.62 seconds on an average and the voided volume and time was 234 ml and 65 seconds respectively. The flow time varied from 12-415 seconds showing a very wide range.

In our study patients having voided volume greater than 150ml were included. Mean voided volume was 234ml with standard deviation 88ml. results are consistent with other studies like Gupta et al[22], Puta et al[6]

**Table 34: comparison of voided volume with other studies**

| Voided Volume (ml) | Our study | Gupta *et al*[22] | Putra *et al*[6] |
|---|---|---|---|
| Mean±SD | 234.09+-88.820 | 252 | 248+-136 |

Heyns et al[45] found significant correlations between VV and Qmax as well as Qave. They also observed relatively strong correlation between total IPSS and VPSS scores in the group with VV >150 ml then group with VV <150 mln and between PVR and Qmax (r=-0.225, p=0.03) as well as Qave (r=-0.284, p=0.006)

**IPSS questionnaire**

Nocturia was most common IPSS symptom present in 93% of cases also mentioned by Liu et al[45] and incomplete bladder emptying was least common presentation in 46%of patients.

Forty-four patients did not complain of incomplete emptying and only 6 patients complained of incomplete emptying almost always. Twenty-seven patients experienced increased frequency less than half the time, while 19 patients said they endured increased frequency more than half the time in last month.

Storage symptoms that is frequency, urgency and nocturia were present in 84, 59 and 93 patients respectively whereas obstructive symptoms like incomplete empty, Intermittency, Weak stream, Straining were present in 56, 59, 77 and 62 patients respectively

As per IPSS symptom score we found that 24.5% had mild score, 62.8% had moderate and 12.8% had severe IPSS score, these results are comparable with study conducted by Putra et al[6].

Thus, majority of patients have moderate symptoms on IPSS, followed by mild symptoms.

**Table 35: IPSS grading comparison**

| **IPSS grading** | **Our study** | **Putra *et al*[6]** |
|---|---|---|
| **Mild 0-7** | 24.5% | 26.6% |
| **Moderate 8-19** | 62.8% | 50.8 |
| **Severe 20-35** | 12.8% | 22.6 |

Mean IPSS score in our study was 12.4 it is comparable with study conducted by Taneja et al[28]. Other sides like Homma et al[32], El Din Ke et al[33], Wadie et al[34],] observed mean IPSS score in range of 17-22.

**Table 36: IPSS score comparison**

| IPSS Score | Our study | Taneja *et al*[28] |
|---|---|---|
| Mean ± SD | 12.41±6.4 | 13.4±7.8 |
| Range | 1-35 | 0-35 |

**Quality of life in IPSS**

Patients were asked about their feelings related to urinary symptoms, maximum patients 35.1 % were pleased according to IPSS-QOL scale and almost 14.9% patients were satisfied and also same percentage was unhappy. Only 1% patients were having terrible QoL.

We observed a mean IPSS QOL 2.67, similarly Gupta et al[22] and Putra et al[6] observed mean IPSS QOL as 2.9 and 3 respectively.

Thus mostly people were satisfied or had mixed response related to bother caused by LUTS

**Filling of IPSS**

Only 37.2% patients were able to fill the IPSS score by themselves, rest 62.8% patients required assistance

In study conducted by Taneja et al[28] 44% were able to fill IPSS questionnaire by themselves. Ceylan et al[43] observed that 35% fill questionnaire without assistance and this percentage was 24% in study conducted by Gupta et al[22]

Thus, about only one third are able to answer IPSS questionnaire without assistance.

In study conducted by Putra et al[6] 75.8% were able to fill IPSS questionnaire without assistance, the reason for it is that most of enrolled patients had higher level of education in their study.

**Table 37: IPSS filled by**

| IPSS filled by | Our study(%) | Gupta *et al*[22] (%) | Taneja *et al*[28] (%) | Putra *et al*[6] (%) | ceylan *et al*[43] (%) |
|---|---|---|---|---|---|
| **Self** | 37.2 | 24 | 44 | 75.8 | 35 |
| **With assistance** | 62.8 | 76 | 56 | 24.8 | 65 |

**Time taken to fill IPSS questionnaire**

Time taken to fill this scoring on an average was 172.5 seconds with quickest being 90 seconds to maximum up to 490 seconds.

**Table 38: Time taken to fill IPSS in seconds**

| Time taken to fill IPSS in seconds | Our study | Gupta *et al*[22] | Taneja *et al*[28] |
|---|---|---|---|
| **Mean** | 172.5 | 192 | 283 |
| **range** | 90-490 | - | 90-600 |

In study conducted by Gupta et al[22] 192 sec was mean time required to fill IPSS and Taneja et al[28] observed that patients required 90 to 600 sec to answer questionnaire

Thus, on an average about 3 minute were required to answer IPSS questionnaire.

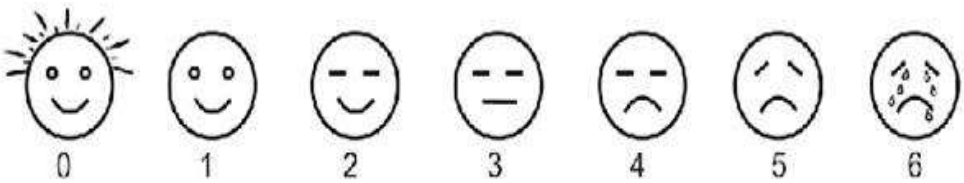
**VPSS questionnaire**

The score for stream varied from 1 to 5 and a large number of patients (33) had score of 3. The day time frequency score was 5 in 35 patients while night time frequency score was 5 in only 8 patients. In terms of night time frequency, 26 patients had a score of 2.

Thirteen patients had normal stream and marked 1 on pictogram. Fifteen needed to urinate once during night and rest had nocturia and need to urinate twice or more during night time.

**Quality of life in VPSS**

Pictogram using various facies were used to evaluate QoL in VPSS




In our study, 30 patients marked 2 whereas 14 marked 1 and other 14 patients marked for 3.

Thus mostly patients had better QOL related to bother caused by LUTS

**VPSS Questionnaire answering**

Maximum patients 80.9% were able to fill the scoring by themselves and in only around 19.1 % patients required assistance to fill up the score

In study conducted by Roy et al[48] 83% filled VPSS questionnaire without any assistance, similar results were found by other studies conducted by Ceylan et al[43], Taneja et al[28] and Putra et al[6].

Thus, majority of patients are able to fill VPSS by themselves in comparison to only one-third are able to fill IPSS without assistance.

**Table 39: VPSS filling**

| **VPSS filled by** | **Our study**(%) | **Taneja *et al*[28]** (%) | **Putra *et al*[6]** (%) | **Ceylan *et al*[43]** (%) | **Roy *et al*[48]** (%) |
|---|---|---|---|---|---|
| **Self** | 80.9 | 81 | 88.9 | 87.6 | 83 |
| **with assistance** | 19.1 | 19 | 10.1 | 12.4 | 17 |

**VPSS scoring**

Mean VPSS in our study was 10.78 with ranging from 5-17 with standard deviation of 2.64 these results are consistent with results of Gupta et al[22] and Putra et al[6].

Putra et al[6] observed mean IPSS of 10.8 with ranging from 3 to 17 and standard deviation of 2.7

Thus, majority of patients had severe symptoms on VPSS questionnaire.

**Table 40: comparison of VPSS with other studies**

| **VPSS score** | **Our study** | **Gupta *et al*[22]** | **Putra *et al*[6]** |
|---|---|---|---|
| **Mean ±SD** | 10.78±2.64 | 11.9 | 10.8±2.7 |
| **Range** | 5-17 | - | 3-17 |

**Time taken to fill VPSS**

The average time it takes to fill up the scoring system was observed to be 58.7 seconds and score varies from 20 to 170 sec with standard deviation of 34.3 secs. Gupta et al[22] observed that mean time of 67

sec is required to fill VPSS. This was in contrast with the observation by Taneja et al[28] where they observed 166 seconds as mean time to fill the VPSS.

**Table 41: VPSS time taken to fill**

| VPSS time taken to fill in seconds | Our study | Taneja et al[28] | Gupta et al[22] |
|---|---|---|---|
| **Mean** | 58.73 | 166 | 67 |
| **Range** | 20-170 | 30-480 | - |

**Comparison of QOL in IPSS and VPSS**

A significant correlation was found for QoL between the two scoring system used. Almost same percentage of patients fell into score 0 and slight difference was seen with score 3,4,6. In IPSS scoring maximum 35% patients had score of 1 and in VPSS 31.9% patients had score of 2.

A study by Gupta et al[22] observed , IPSS QoL and VPSS QoL were correlated positively and Putra et al[6] observed the VPSS total score was significantly correlated with the VPSS QoL ($r = 0.45$, $P < 0.001$) and inversely correlated with Qmax ($r = 0.19$, $P = 0.002$). The IPSS QoL was significantly correlated with the VPSS QoL ($r = 0.76$, $P < 0.001$).

**Table 42: IPSS QoL versus VPSS QoL**

| Ipss QoL-VPSS QoL | Our study | Afriansyah et al[41] | Heyns et al[45] | Park et al[46] |
|---|---|---|---|---|
| **r** | 0.58 | 0.82 | 068 | 0.59 |
| **P** | <0.001 | <0.001 | <0.001 | <0.001 |

**Comparison of time taken to answer questionnaire**

The time taken to fill IPSS scoring was far more than VPSS. Mean time taken to fill VPSS is around one minute and for IPSS it is around 3 minutes.

Taneja et a[28]l observed the average time for VPSS was 166 second and IPSS was more around 283 seconds so is similar to our observation.(P<0.0001)

Gupta et al[22] found in their study that on average 192 sec is required IPSS and 67 sec for VPSS

**Correlation of IPSS and VPSS with Qmax, Q average**

The Qmax was observed to be significantly correlated with both IPSS and VPSS scoring in our study. Taneja et al[28] observed that total VPSS and total IPSS showed a negative correlation with Qmax: IPSS total versus Qmax (P < 0.0001) and VPSS total versus Qmax (P < 0.0001). Similarly, a negative correlation was observed between IPSS total versus Qavg (P < 0.0001) and VPSS total versus Qavg

Another study by Heyns et al[45] observed that Qmax correlated significantly with total IPSS as well as VPSS. The correlations between Qavg and total IPSS as well as VPSS were also significant.

**Table 43: Correlation of IPSS and VPSS with Qmax, Q average**

| | | IPSS score | | VPSS score | |
|---|---|---|---|---|---|
| | | Pearson Correlation | p-value | Pearson Correlation | p-value |
| Our study | Qmax | -0.375 | 0.000 | -0.277 | 0.007 |
| | Qaverage | -0.04 | 0.703 | -0.07 | 0.502 |
| Taneja et al | Qmax | -0.628 | <0.0001 | -0.578 | <0.0001 |
| | Qaverage | -0.479 | <0.0001 | -0.5 | <0.0001 |
| ceylan et al | Qmax | -0.52 | <0.001 | -0.3 | <0.001 |
| | Qave | -0.434 | <0.001 | -0.317 | <0.001 |
| Heyns et al | Qmax | -0.28 | <0.001 | -0.42 | <0.001 |
| | Qave | -0.29 | <0.001 | -0.41 | <0.001 |

In study conducted by Gupta et al[22] negative correlation between total VPSS and Qmax (p=< 0.0001) and Qavg was observed. Putra et al[6] observed that VPSS voiding score was significantly correlated with

Qmax (P < 0.001). The IPSS voiding score was correlated significantly with PVR (P =0.006)

Another study by Park et al[46] also observed significant correlations between the maximal urinary flow rate and IPSS/VPSS obstructive symptoms

Gupta at al[22] found significant negative correlation between VPSS and Qmax (r-0.481, P<0.0001) and between IPSS and Qmax

**Correlation of IPSS and VPSS with PSA**

No significant correlation was observed in the values of PSA with respect to IPSS and VPSS scoring in our study whereas Lim et al[50] in their study observed that PSA would not be a good predictor for symptom scores and hence it is unable to accurately gauge the symptomatic severity in BPH patients. Another study by Tsukamoto et al[51]. carried out a similar study on 67 patients in Japan but found no significant correlation between PSA and IPSS. Favilla et al[52] in their study on 122 patients in Italy as well found no correlation between the two variables. In another study by Isiwele et al[53] PSA values were not found to correlate with IPSS scores or median quality of life values in their study.

**Correlation of IPSS and VPSS with prostate size**

No significant correlation was observed with the size of the prostate with respect to IPSS and VPSS scoring.

**Table 44: Correlation of IPSS and VPSS with prostate size**

| | | **PROSTATE SIZE** |
|---|---|---|
| **IPSS score** | Pearson Correlation | -0.025 |
| | p-value | 0.808 |
| **VPSS score** | Pearson Correlation | -0.039 |
| | p-value | 0.710 |

Agrawal et a[11]l reported that prostate volume had no correlation with age, symptom score, and quality of life score, hence prostatic size should not be an only and important consideration.

Ima-Abasi et al[54] concluded that the size of the prostate does not determine the severity of lower urinary tract symptoms in men with enlarged prostates. correlation between IPSS and prostate volume was not statistically significant (p=0.773). Similar results were observed in several other studies[55,56]

Barry et al[17] reported that the measurements of prostate size and the severity of bladder outlet obstruction (BOO) correlate poorly with the severity of LUTS. Objective measurements of LUTS are key outcome measures for judging the success of treatment in clinical practice.

**Correlation of prostate size and PSA with Qmax, Qaverage**

The prostrate size had no significance correlation with the Q average, same is for the Prostate specific antigen, the only significant negative correlation was between prostate size and Q max (p value 0.023). Els et al also observed negative correlation between prostate size and Qmax r -0.226, p 0.009

**Table 45: Correlation of prostate size and PSA with Qmax, Qaverage**

| | | PROSTATE SIZE | Qmax | Qave |
|---|---|---|---|---|
| Prostate Size (gm) | Pearson Correlation | 1.000 | -0.235 | -0.069 |
| | p-value | | 0.023 | 0.506 |
| PSA | Pearson Correlation | 0.200 | -0.043 | -0.030 |
| | p-value | 0.053 | 0.679 | 0.771 |

**Effect of education on answering IPSS and VPSS questionnaire**

A significant (p value=.001) correlation existed between filling of scoring system with education level of the patient. Patients who had education level of at least high school and above i.e. up to college,

university level were able to fill up their scoring, but patients who had studied up to middle school or had no formal education needed assistance for fill the questionnaire.

In our study patient with education up to high school level (3.2%) were able to fill IPSS questionnaire without assistance and 96.7% required assistance. Among patient having higher education 46% required assistance where as 54 % answered questionnaire by themselves

In our study patients having middle school level education or less (51.6%) required assistance for VPSS questionnaire whereas 48.3% were able to fill it without assistance

Among patients with education above high school level only 6.3% required assistance while as 93.6% did not require any assistance. This difference was found to be statistically significant ($P < 0.0001$).

In the study conducted by van der walt, [38] among patients with low education status < 7 grade, 87% required assistance to complete IPSS and 32% to complete VPSS. In patients with more than grade 10 education, 24% required assistance to complete IPSS while only 8% to complete VPSS

Gupta et al[22] observed that all illiterate population required assistance to fill up IPSS while VPSS could be filled in by self or family member in 50 % of the cases. In literate population, filling up of VPSS required assistance of a doctor in 10% while it was 63% in IPSS group.

Taneja et al[28] reported that in patients with education level < 9th, the VPSS questionnaire was completed without assistance by 73.3% patients, whereas only 20% patients could complete the IPSS questionnaire without assistance. In contrast, among patient with education level > 9th, the VPSS questionnaire was completed without assistance by 90% patients, whereas only 72% patients could complete the IPSS questionnaire without assistance. This difference was found to be statistically significant ($P < 0.0001$).

Cam et al[19] in their study found that 34% of patients with a low (elementary school) educational level did not even fill the IPSS questionnaire and returned them totally unmarked

In the study by Putra et al[6] 36% men with low level of education required assistance for completion of IPSS questionnaire compared with 16.4% men with high level of education (P < 0.001). On the other hand, to fill the VPSS questionnaire 10% men with low level of education needed assistance compared with 11.8% men with high level of education (P<0.001) (check this again)

M. els et al found that in the group of education grade 7, only 17.6% could complete the IPSS without assistance, whereas 38.2% could complete the VPSS without assistance. This difference was not statistically significant thus with increase in education level need for assistance to answer questionnaire decreases

**IPSS total versus VPSS total**

We observed significant positive correlation between IPSS and VPSS with correlation coefficient of 0.583 and p value of <0.001

**Table 46: Correlation of IPSS total vs VPSS total in different studies**

| **Total Ipss - total vpss** | **Our study** | **Taneja et al[28]** | **Heyans et al[45]** | **Afriansyah et al[41]** | **Park et al[46]** | **ceylan et al**[43] |
|---|---|---|---|---|---|---|
| r | 0.583 | 0.72 | 0.62 | 0.67 | 0.62 | 0.72 |
| P | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

There was significant positive correlation between total VPSS and total IPSS as observed by Gupta et al[22] , Taneja et al[28]

Putra et al[6] observed the IPSS total score was significantly correlated with the VPSS total score and IPSS QoL (r 0.67, P<0.001)

Thus IPSS and VPSS have significant positive correlation with each other, however VPSS takes less time, can be filled by less educated people without assistance

# SUMMARY AND CONCLUSION

The mean age in our study was of 63.8years with age ranged from 45 to 81years. Most common clinical presentation in our study was increased urinary frequency followed by weak stream and nocturia.

The mean Qmax 11.5 ml/sec. (3-27 ml/sec) and Q average mean was ml/sec (2-16 ml/sec). Time to peak was 19.62 seconds on an average and the average voided volume and time was 234 ml and 65 seconds respectively. On USG the average prostate weight was 39.8 gm (11-120gm). The average post-void residual volume was around 70 ml. The pre void and post void volume varied from 93-900 ml and 0 to 600 ml respectively

The Qmax was observed to be have significant correlation with both IPSS and VPSS in our study. However, no significant correlation was observed in the values of PSA or prostate size or Qavg with respect to IPSS and VPSS scoring

The prostrate size had no significant correlation with the PSA, Q average or with IPSS and VPSS scoring, however prostate size and Qmax were inversely related.

A highly significant correlation was found between IPSS and VPSS for quantify LUTS. However VPPS is a reliable and easy alternative to IPSS in evaluating the severity of LUTS in patients with BHP.

Most people had trouble filling the IPSS independently as compared to filling VPSS. Only 37.2% patients were able to fill the IPSS score, for rest 62.8% patients scoring was filled with assistance.

There was a significant (P =.001) correlation of filling of scoring system with education level of the patient. Among patient having no education or education level up to high school 12.7%, 47.8% were able to fill IPSS, VPSS questionnaire without assistance respectively. Among patient who college level education or above 24.5%, 26.5% do not required assistance for IPSS, VPSS respectively

.

Thirty five percent (35.1%) were pleased according to IPSS-QOL scale and 14.9% patients said they were ‘almost satisfied’ and also same percentage said they were ‘unhappy’. Only 1% patients were in terrible situation as per IPSS score QoL. We observed a mean IPSS QOL 2.67. Similar results were observed for QoL in VPSS

Thus, majority of our patients people were in range of mostly satisfied or had mixed response related to bother caused by LUTS.

The time taken to fill IPSS scoring was far more than VPSS. The average time for IPSS was 172sec as compared to 59sec for VPSS

**Conclusion:** We concluded that VPPS is a reasonable, reliable and easy alternative to IPSS in evaluating the severity of LUTS in patients with BHP. It has particular utility in our country, poorer sections of the society which usually belong to lower education levels.

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**PROFORMA**

Sr No._____

Name_____ Age_____

MRD_____

C/O_____

_____

HOPI_____

_____

_____

_____

_____

Pasthistory_____

_____

PersonalHistory_____

_____

Other significant history_____

**Signature of Candidate** **Signature of Supervisor**

IPSS:-_____

VPSS:-_____

**General physical examination**

_____

_____

_____

P/A_____

_____

DRE_____

_____

**Signature of Candidate** **Signature of Supervisor**

**INVESTIGATION**

Hb TLC PLT

Sr Urea Creatinine

**Urine Examination.**

**Ultrasonography- KUB……..**

**Serum prostatic specific antigen……..**

**Uroflowmetery:-** $Q_{max}$ ..... $Q_{ave}$…….

**Any other investigation**……

**Signature of Candidate** **Signature of Supervisor**

# KEY TO MASTER CHART

**ADDRESS**

1- RURAL

2- URBAN

**EDUCATION**

0-NO EDUCATION

1- MIDDLE SCHOOL

2- HIGH SCHOOL

3- COLLEGE

4- UNIVERSITY

**CHIEF COMPLAINT**

1- NOCTURIA

2- INCREASED FREQUENCY

3- WEAK STREAM

4- URGENCY

5-SUPRA PUBIC DISCOMFORT

6- INCOMPLETE EMPTYING OF BLADDER

7- INTERMITTENCY

8. STRAINING

9. DYSURIA

10. HESITANCY

**DIABETES MELLITUS**

0- NO

1- YES

**COMORBIDITIES/HYPERTENSION**

0- NOT PRESENT

1- PRESENT

**FILLED BY**

1-ASSISTED BY PHYSICIAN

2-SELF

3- ASSISTED BY RELATIVE

| S. NO | MRD | AGE (Years) | ADDRESS | EDUCATION | C/O | DURATION OF SYMPTOMS (MONTHS) | DM | DURATION OF DM (YEARS) | COMORBIDITY | H/O SURGERY | HB (gm/dl) | TLC (1000/dl) | PLT (1000/dl) | UREA (mg/dl) | CREATININE (mg/dl) | USG PROSTATE | | | PSA (ng/dl) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | PROSTATE SIZE (gm) | PREVOID (ml) | PVRU (ml) | | Qmax (ml/sec) | TIME TO PEAK (sec) |
| 1 | 565471 | 75 | 1 | 0 | 3 | 6 | 0 | 0 | 1 | 0 | 10.2 | 7 | 120 | 37 | 1.02 | 38 | 280 | 30 | 2.4 | 8 | 5 |
| 2 | 852016 | 71 | 2 | 1 | 1,3 | 12 | 0 | 0 | 0 | 0 | 12 | 9 | 220 | 32 | 0.9 | 46 | 260 | 108 | 2.19 | 7 | 34 |
| 3 | 817090 | 57 | 2 | 3 | 2 | 4 | 0 | 0 | 0 | 0 | 15 | 8 | 228 | 23 | 0.72 | 36 | 230 | 120 | 1.2 | 7 | 76 |
| 4 | 806891 | 62 | 2 | 3 | 2 | 6 | 1 | 1 | 0 | 0 | 11.2 | 5 | 170 | 33 | 0.9 | 44 | 310 | 50 | 2.4 | 15 | 17 |
| 5 | 690361 | 52 | 1 | 1 | 4 | 3 | 0 | 0 | 0 | 0 | 13.4 | 8.8 | 312 | 36 | 0.72 | 17 | 240 | 90 | 0.8 | 10 | 136 |
| 6 | 770410 | 67 | 1 | 3 | 2 | 60 | 0 | 0 | 0 | 0 | 10.8 | 5.4 | 198 | 35 | 0.83 | 42 | 238 | 30 | 12.3 | 16 | 13 |
| 7 | 26745 | 81 | 2 | 0 | 2 | 72 | 0 | 0 | 0 | 0 | 9.3 | 6.1 | 78 | 52 | 0.84 | 35 | 290 | 130 | 0.29 | 4 | 44 |
| 8 | 36016 | 73 | 1 | 0 | 1 | 6 | 0 | 0 | 1 | turp | 10.2 | 4.8 | 194 | 38 | 1.01 | 15 | 360 | 10 | 1.2 | 27 | 14 |
| 9 | 833335 | 70 | 2 | 2 | 1 | 48 | 1 | 6 | 1 | 0 | 8.9 | 5.3 | 134 | 42 | 1.1 | 41 | 250 | 10 | 1.19 | 10 | 10 |
| 10 | 784461 | 60 | 2 | 1 | 1 | 24 | 0 | 0 | 0 | 0 | 11.3 | 7.4 | 210 | 28 | 0.7 | 42 | 235 | 20 | 2.8 | 3 | 28 |
| 11 | 806752 | 65 | 2 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 9.4 | 6.7 | 165 | 33 | 0.84 | 45 | 294 | 134 | 3.2 | 12 | 33 |
| 12 | 777878 | 56 | 2 | 4 | 1 | 8 | 0 | 0 | 0 | 0 | 14.3 | 8.3 | 212 | 27 | 0.73 | 16 | 268 | 30 | 0.14 | 16 | 15 |
| 13 | 817444 | 62 | 1 | 1 | 5 | 5 | 1 | 7 | 0 | haemorrhoidectomy | 14.6 | 6.4 | 215 | 13 | 1.1 | 30 | 900 | 600 | 2.3 | 10 | 48 |
| 14 | 791495 | 69 | 1 | 2 | 3 | 4 | 0 | 0 | 0 | 0 | 13.8 | 9.9 | 189 | 26 | 0.74 | 90 | 208 | 80 | 2.45 | 4 | 42 |
| 15 | 54970 | 54 | 1 | 4 | 2 | 4 | 0 | 0 | 0 | 0 | 13.3 | 5.8 | 87 | 18 | 1.03 | 27 | 380 | 10 | 1.02 | 20 | 8 |
| 16 | 60300 | 78 | 2 | 1 | 2 | 1.2 | 1 | 3 | 0 | 0 | 7.8 | 13.4 | 143 | 67 | 1.7 | 31 | 250 | 40 | 0.88 | 13 | 9 |
| 17 | 822832 | 64 | 1 | 2 | 3 | 5 | 1 | 30 | 1 | 0 | 9.3 | 5.6 | 206 | 42 | 1.6 | 69 | 180 | 10 | 2.9 | 8 | 7 |
| 18 | 263397 | 55 | 2 | 4 | 3 | 4 | 0 | 0 | 0 | hernioplasty | 11.5 | 7.1 | 156 | 35 | 1.04 | 38 | 194 | 20 | 1.92 | 9 | 27 |
| 19 | 734264 | 75 | 1 | 0 | 3 | 8 | 0 | 0 | 0 | turp | 10.5 | 4 | 130 | 47 | 1.65 | 28 | 175 | 16 | 1.65 | 8 | 12 |
| 20 | 634743 | 63 | 1 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 9.7 | 6.2 | 214 | 16 | 0.72 | 20 | 198 | 40 | 1.02 | 22 | 17 |
| 21 | 819403 | 45 | 2 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 13.2 | 8.3 | 186 | 22 | 0.8 | 21 | 360 | 10 | 0.6 | 24 | 10 |
| 22 | 572866 | 66 | 2 | 2 | 6 | 6 | 1 | 3 | 0 | 0 | 14.6 | 12 | 150 | 29 | 0.71 | 58 | 410 | 80 | 2.1 | 19 | 10 |
| 23 | 807474 | 70 | 1 | 0 | 1,2 | 2 | 1 | 5 | 0 | 0 | 10.7 | 9.9 | 150 | 51 | 0.72 | 97 | 166 | 10 | 19 | 3 | 5 |
| 24 | 814231 | 79 | 2 | 0 | 1 | 84 | 1 | 10 | 1 | 0 | 10.9 | 6.6 | 186 | 16 | 1.06 | 54 | 210 | 10 | 1.33 | 20 | 7 |
| 25 | 816825 | 66 | 2 | 1 | 3 | 60 | 0 | 0 | 0 | turp | 11.3 | 5.6 | 214 | 44 | 1.4 | 25 | 550 | 110 | 0.92 | 18 | 31 |
| 26 | 804308 | 49 | 2 | 3 | 2 | 12 | 0 | 0 | 0 | 0 | 15 | 7.2 | 170 | 18 | 0.73 | 17 | 564 | 85 | 0.7 | 12 | 32 |
| 27 | 761258 | 49 | 2 | 1 | 2 | 4 | 1 | 4 | 0 | 0 | 12.3 | 9.3 | 257 | 20 | 0.76 | 25 | 280 | 54 | 0.82 | 13 | 7 |
| 28 | 727689 | 72 | 2 | 2 | 2 | 12 | 1 | 10 | 0 | hernia repair | 10.2 | 9.1 | 308 | 37 | 0.43 | 50 | 544 | 470 | 0.93 | 8 | 7 |
| 29 | 493509 | 60 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 11 | 11 | 198 | 31 | 1.02 | 28 | 274 | 90 | 3.1 | 10 | 42 |
| 30 | 81729 | 60 | 2 | 0 | 2,7 | 6 | 1 | 5 | 0 | 0 | 13 | 7.6 | 175 | 30 | 0.87 | 34 | 213 | 50 | 1.5 | 11 | 4 |
| 31 | 760945 | 63 | 2 | 3 | 3 | 3 | 1 | 1 | copd | 0 | 9.3 | 26.7 | 610 | 66 | 1.59 | 39 | 250 | 141 | 1.23 | 18 | 23 |
| 32 | 101673 | 58 | 2 | 4 | 1 | 2 | 0 | 0 | 0 | 0 | 14.5 | 7.3 | 174 | 23 | 0.85 | 32 | 280 | 36 | 1.7 | 13 | 7 |
| 33 | 780049 | 54 | 2 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 13.6 | 9 | 195 | 27 | 0.89 | 15 | 230 | 10 | 0.89 | 13 | 10 |
| 34 | 295554 | 60 | 1 | 1 | 2 | 120 | 0 | 0 | 0 | 0 | 12.5 | 7.3 | 230 | 34 | 0.9 | 30 | 210 | 20 | 0.44 | 16 | 10 |
| 35 | 606653 | 68 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 10.4 | 7.8 | 186 | 23 | 0.72 | 35 | 230 | 15 | 0.16 | 20 | 3 |
| 36 | 784656 | 69 | 2 | 3 | 2 | 12 | 0 | 0 | 0 | 0 | 10.1 | 10.7 | 165 | 33 | 0.98 | 27 | 350 | 40 | 0.56 | 9 | 10 |
| 37 | 70162 | 73 | 1 | 0 | 2 | 24 | 0 | 0 | 0 | 0 | 14.1 | 5.7 | 237 | 25 | 0.8 | 40 | 93 | 64 | 1.2 | 6 | 4 |
| 38 | 793783 | 63 | 2 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 9.2 | 6.4 | 210 | 34 | 1.02 | 23 | 380 | 57 | 0.76 | 10 | 18 |
| 39 | 354340 | 79 | 2 | 0 | 8 | 60 | 0 | 0 | 0 | 0 | 11.8 | 9.2 | 174 | 52 | 1.7 | 25 | 180 | 20 | 2.1 | 6 | 13 |
| 40 | 734811 | 53 | 1 | 2 | 7 | 3 | 0 | 0 | 0 | 0 | 13.2 | 10.5 | 212 | 26 | 0.6 | 27 | 250 | 10 | 0.9 | 8 | 5 |
| 41 | 890308 | 65 | 1 | 0 | 2,1 | 4 | 1 | 2 | 0 | 0 | 8.6 | 4.9 | 315 | 31 | 1.02 | 34 | 220 | 0 | 0.8 | 8 | 38 |
| 42 | 915714 | 76 | 2 | 1 | 2 | 5 | 0 | 0 | 0 | hernia repair | 13 | 5.2 | 193 | 21 | 1.06 | 25 | 230 | 77 | 1.13 | 7 | 5 |
| 43 | 868222 | 74 | 1 | 0 | 3 | 7 | 0 | 0 | 0 | 0 | 13.5 | 8.3 | 157 | 35 | 1.02 | 38 | 230 | 20 | 1.56 | 10 | 3 |
| 44 | 935910 | 68 | 2 | 3 | 2 | 5 | 1 | 12 | 0 | 0 | 12.1 | 8.7 | 194 | 43 | 1.2 | 66 | 354 | 50 | 3.2 | 24 | 7 |
| 45 | 866800 | 70 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 11.1 | 8.3 | 324 | 37 | 1.03 | 42 | 200 | 0 | 2.03 | 12 | 6 |
| 46 | 891134 | 64 | 2 | 2 | 2, 6 | 6 | 0 | 0 | 0 | 0 | 15 | 12.8 | 178 | 20 | 0.7 | 54 | 165 | 0 | 0.49 | 11 | 15 |
| 47 | 913133 | 72 | 2 | 1 | 2 | 5 | 0 | 0 | 0 | 0 | 12.7 | 11.8 | 216 | 32 | 0.8 | 14 | 190 | 30 | 0.86 | 20 | 27 |
| 48 | 912172 | 60 | 2 | 2 | 2 | 4 | 0 | 0 | htn | 0 | 13 | 8.4 | 243 | 36 | 1.1 | 30 | 162 | 0 | 1.62 | 12 | 15 |
| 49 | 823865 | 72 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 10.9 | 6.6 | 140 | 23 | 0.78 | 47 | 200 | 80 | 1.86 | 12 | 7 |
| 50 | 887762 | 77 | 2 | 1 | 2 | 36 | 0 | 0 | asthma | 0 | 11.3 | 8.7 | 232 | 38 | 0.86 | 40 | 257 | 46 | 4.37 | 15 | 8 |
| 51 | 869779 | 66 | 2 | 2 | 1,9 | 1 | 0 | 0 | 0 | hernioplasty | 12.3 | 11 | 245 | 35 | 0.8 | 43 | 308 | 40 | 1.3 | 17 | 8 |
| 52 | 895747 | 57 | 2 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 14 | 5.7 | 154 | 30 | 0.8 | 60 | 350 | 0 | 0.7 | 20 | 7 |
| 53 | 284434 | 71 | 2 | 2 | 7,8 | 3 | 1 | 6 | 0 | 0 | 10.4 | 10.9 | 312 | 81 | 2.82 | 12 | 151 | 0 | 0.6 | 14 | 32 |

| S. NO | MRD | UROFLOWMETERY | | | | IPSS | | | | | | | | | | | VPSS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VOIDED VOLUME (ml) | FLOW TIME (sec) | VOIDING TIME (sec) | Qave (ml/sec) | INCOMPLETE EMPTY | FREQUENCY | INTERMITTENCY | URGENCY | WEAK STREAM | STRAINING | NOCTURIA | IPSS SCORE | QOL | FILLED BY | TIME TAKEN (sec) | STREAM | DAY TIME FREQUENCY | NIGHT TIME FREQUENCY | VPSS SCORE | QOL | FILLED BY | TIME TAKEN (sec) |
| 1 | 565471 | 220 | 52 | 62 | 3 | 2 | 2 | 3 | 0 | 3 | 3 | 4 | 17 | 3 | 1 | 210 | 5 | 3 | 5 | 13 | 4 | 1 | 80 |
| 2 | 852016 | 178 | 58 | 64 | 3 | 2 | 2 | 0 | 2 | 3 | 4 | 1 | 14 | 4 | 1 | 90 | 3 | 4 | 3 | 10 | 4 | 2 | 30 |
| 3 | 817090 | 184 | 61 | 86 | 4 | 1 | 2 | 0 | 1 | 2 | 0 | 4 | 10 | 1 | 2 | 180 | 3 | 6 | 3 | 12 | 2 | 2 | 50 |
| 4 | 806891 | 348 | 48 | 54 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 6 | 1 | 2 | 170 | 3 | 5 | 2 | 10 | 2 | 2 | 40 |
| 5 | 690361 | 152 | 26 | 151 | 7 | 3 | 4 | 3 | 2 | 4 | 3 | 1 | 20 | 2 | 1 | 130 | 2 | 3 | 1 | 6 | 2 | 2 | 60 |
| 6 | 770410 | 196 | 31 | 32 | 6 | 0 | 1 | 2 | 1 | 2 | 1 | 2 | 9 | 2 | 2 | 175 | 3 | 5 | 2 | 10 | 2 | 2 | 40 |
| 7 | 26745 | 150 | 50 | 52 | 2 | 4 | 3 | 5 | 2 | 5 | 2 | 3 | 24 | 5 | 1 | 150 | 3 | 6 | 3 | 12 | 5 | 3 | 40 |
| 8 | 36016 | 355 | 22 | 27 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 80 | 3 | 2 | 2 | 7 | 3 | 1 | 30 |
| 9 | 833335 | 241 | 42 | 47 | 6 | 0 | 4 | 1 | 2 | 2 | 0 | 0 | 9 | 0 | 1 | 100 | 2 | 5 | 2 | 9 | 0 | 2 | 46 |
| 10 | 784461 | 211 | 111 | 123 | 2 | 0 | 4 | 0 | 0 | 3 | 2 | 4 | 13 | 3 | 1 | 120 | 3 | 5 | 4 | 12 | 4 | 1 | 30 |
| 11 | 806752 | 175 | 37 | 72 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 114 | 2 | 5 | 1 | 8 | 1 | 2 | 35 |
| 12 | 777878 | 253 | 33 | 50 | 8 | 5 | 1 | 3 | 0 | 1 | 0 | 2 | 12 | 1 | 3 | 165 | 1 | 4 | 2 | 7 | 2 | 2 | 40 |
| 13 | 817444 | 235 | 54 | 78 | 4 | 3 | 4 | 2 | 0 | 1 | 3 | 3 | 16 | 5 | 1 | 135 | 3 | 6 | 4 | 13 | 4 | 1 | 33 |
| 14 | 791495 | 157 | 65 | 76 | 2 | 4 | 2 | 4 | 5 | 2 | 3 | 5 | 25 | 3 | 3 | 170 | 4 | 6 | 6 | 16 | 3 | 2 | 38 |
| 15 | 54970 | 391 | 52 | 58 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 7 | 4 | 2 | 124 | 1 | 6 | 6 | 13 | 4 | 2 | 42 |
| 16 | 60300 | 210 | 30 | 30 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 1 | 127 | 2 | 5 | 2 | 9 | 3 | 1 | 39 |
| 17 | 822832 | 157 | 33 | 36 | 5 | 0 | 0 | 2 | 0 | 3 | 0 | 1 | 6 | 1 | 2 | 165 | 3 | 4 | 1 | 8 | 1 | 2 | 46 |
| 18 | 263397 | 163 | 35 | 57 | 6 | 0 | 1 | 1 | 1 | 3 | 0 | 1 | 7 | 1 | 2 | 150 | 3 | 4 | 1 | 8 | 1 | 2 | 44 |
| 19 | 734264 | 150 | 27 | 28 | 7 | 3 | 2 | 2 | 0 | 5 | 2 | 1 | 15 | 1 | 1 | 124 | 2 | 4 | 1 | 7 | 2 | 3 | 35 |
| 20 | 634743 | 153 | 12 | 21 | 13 | 3 | 3 | 0 | 0 | 2 | 1 | 2 | 11 | 5 | 3 | 190 | 1 | 6 | 2 | 9 | 5 | 2 | 40 |
| 21 | 819403 | 351 | 27 | 29 | 7 | 3 | 3 | 0 | 0 | 0 | 0 | 5 | 11 | 5 | 2 | 158 | 2 | 4 | 6 | 12 | 5 | 2 | 38 |
| 22 | 572866 | 320 | 34 | 38 | 9 | 3 | 0 | 0 | 0 | 1 | 0 | 2 | 6 | 2 | 2 | 137 | 5 | 4 | 2 | 11 | 2 | 2 | 42 |
| 23 | 807474 | 152 | 55 | 60 | 2 | 2 | 4 | 3 | 2 | 4 | 1 | 4 | 20 | 4 | 1 | 115 | 5 | 5 | 4 | 14 | 4 | 3 | 30 |
| 24 | 814231 | 199 | 22 | 29 | 9 | 0 | 3 | 0 | 1 | 0 | 0 | 5 | 9 | 4 | 1 | 132 | 1 | 5 | 5 | 11 | 4 | 1 | 36 |
| 25 | 816825 | 447 | 65 | 190 | 7 | 3 | 1 | 4 | 1 | 3 | 3 | 4 | 19 | 4 | 1 | 118 | 2 | 4 | 4 | 10 | 3 | 2 | 45 |
| 26 | 804308 | 548 | 74 | 75 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 2 | 130 | 2 | 6 | 0 | 8 | 1 | 2 | 43 |
| 27 | 761258 | 234 | 32 | 33 | 7 | 0 | 5 | 3 | 5 | 3 | 3 | 5 | 24 | 5 | 1 | 135 | 3 | 6 | 5 | 14 | 6 | 2 | 50 |
| 28 | 727689 | 156 | 76 | 92 | 5 | 0 | 5 | 1 | 0 | 3 | 0 | 5 | 14 | 3 | 1 | 180 | 5 | 6 | 6 | 17 | 3 | 1 | 60 |
| 29 | 493509 | 198 | 53 | 63 | 7 | 1 | 2 | 2 | 2 | 0 | 1 | 4 | 12 | 2 | 1 | 170 | 2 | 3 | 4 | 9 | 0 | 2 | 55 |
| 30 | 81729 | 173 | 28 | 32 | 6 | 3 | 4 | 2 | 3 | 3 | 3 | 5 | 23 | 5 | 1 | 150 | 4 | 6 | 5 | 15 | 5 | 2 | 50 |
| 31 | 760945 | 182 | 79 | 79 | 2.3 | 3 | 1 | 3 | 1 | 3 | 3 | 1 | 15 | 3 | 1 | 160 | 3 | 5 | 1 | 9 | 3 | 2 | 55 |
| 32 | 101673 | 241 | 42 | 44 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 1 | 3 | 165 | 3 | 6 | 2 | 11 | 2 | 2 | 20 |
| 33 | 780049 | 204 | 23 | 25 | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 6 | 2 | 2 | 168 | 2 | 5 | 5 | 12 | 4 | 2 | 45 |
| 34 | 295554 | 195 | 18 | 19 | 7 | 1 | 2 | 1 | 0 | 2 | 1 | 5 | 12 | 2 | 1 | 105 | 4 | 5 | 5 | 14 | 3 | 2 | 36 |
| 35 | 606653 | 246 | 15 | 17 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 90 | 1 | 4 | 2 | 7 | 1 | 2 | 25 |
| 36 | 784656 | 308 | 66 | 66 | 4 | 4 | 4 | 2 | 2 | 2 | 3 | 4 | 21 | 5 | 1 | 134 | 3 | 5 | 6 | 14 | 4 | 2 | 30 |
| 37 | 70162 | 151 | 31 | 72 | 4 | 0 | 4 | 0 | 2 | 3 | 1 | 2 | 12 | 1 | 1 | 114 | 4 | 6 | 2 | 12 | 2 | 1 | 46 |
| 38 | 793783 | 328 | 61 | 73 | 5 | 3 | 3 | 1 | 1 | 2 | 4 | 4 | 18 | 5 | 1 | 108 | 4 | 6 | 4 | 14 | 5 | 2 | 38 |
| 39 | 354340 | 160 | 57 | 143 | 2 | 1 | 1 | 3 | 1 | 4 | 5 | 3 | 18 | 4 | 1 | 164 | 4 | 6 | 3 | 13 | 4 | 1 | 50 |
| 40 | 734811 | 221 | 48 | 49 | 5 | 1 | 3 | 0 | 0 | 3 | 2 | 2 | 11 | 4 | 2 | 128 | 4 | 5 | 4 | 13 | 3 | 2 | 42 |
| 41 | 890308 | 369 | 65 | 93 | 6 | 0 | 4 | 2 | 2 | 5 | 2 | 4 | 19 | 5 | 3 | 120 | 3 | 6 | 4 | 13 | 4 | 2 | 30 |
| 42 | 915714 | 151 | 46 | 65 | 2 | 0 | 2 | 2 | 0 | 4 | 2 | 4 | 14 | 1 | 1 | 90 | 3 | 3 | 4 | 10 | 1 | 2 | 30 |
| 43 | 868222 | 206 | 48 | 51 | 4 | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 9 | 1 | 1 | 110 | 3 | 4 | 3 | 10 | 2 | 2 | 55 |
| 44 | 935910 | 383 | 40 | 42 | 10 | 0 | 4 | 0 | 1 | 0 | 0 | 4 | 9 | 4 | 2 | 120 | 1 | 5 | 4 | 10 | 3 | 3 | 30 |
| 45 | 866800 | 170 | 30 | 35 | 5 | 0 | 3 | 0 | 4 | 0 | 0 | 3 | 10 | 1 | 1 | 110 | 4 | 6 | 3 | 13 | 1 | 2 | 42 |
| 46 | 891134 | 154 | 24 | 34 | 6 | 3 | 4 | 0 | 0 | 3 | 0 | 2 | 12 | 5 | 3 | 156 | 3 | 6 | 2 | 11 | 5 | 2 | 39 |
| 47 | 913133 | 281 | 27 | 27 | 8 | 0 | 4 | 2 | 2 | 0 | 3 | 3 | 14 | 3 | 1 | 110 | 3 | 5 | 4 | 12 | 3 | 2 | 40 |
| 48 | 912172 | 162 | 29 | 40 | 6 | 0 | 2 | 2 | 3 | 0 | 2 | 2 | 11 | 5 | 2 | 146 | 2 | 6 | 2 | 10 | 5 | 2 | 46 |
| 49 | 823865 | 180 | 24 | 27 | 5 | 1 | 2 | 2 | 1 | 4 | 0 | 4 | 14 | 1 | 1 | 110 | 4 | 5 | 4 | 13 | 2 | 1 | 30 |
| 50 | 887762 | 346 | 58 | 60 | 6 | 0 | 5 | 0 | 5 | 0 | 0 | 5 | 15 | 5 | 1 | 114 | 1 | 6 | 5 | 12 | 5 | 2 | 45 |
| 51 | 869779 | 333 | 50 | 105 | 7 | 3 | 0 | 0 | 0 | 1 | 0 | 2 | 6 | 1 | 3 | 138 | 2 | 4 | 2 | 8 | 1 | 2 | 30 |
| 52 | 895747 | 509 | 70 | 70 | 7 | 0 | 2 | 1 | 2 | 0 | 0 | 2 | 7 | 1 | 2 | 118 | 1 | 6 | 2 | 9 | 1 | 2 | 28 |
| 53 | 284434 | 353 | 75 | 128 | 6 | 0 | 3 | 5 | 2 | 0 | 4 | 3 | 17 | 2 | 1 | 110 | 2 | 2 | 3 | 7 | 2 | 1 | 28 |

| S. NO | MRD | AGE (Years) | ADDRESS | EDUCATION | C/O | DURATION OF SYMPTOMS (MONTHS) | DM | DURATION OF DM (YEARS) | COMORBIDITY | H/O SURGERY | HB (gm/dl) | TLC (1000/dl) | PLT (1000/dl) | UREA (mg/dl) | CREATININE (mg/dl) | USG PROSTATE | | | PSA (ng/dl) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | PROSTATE SIZE (gm) | PREVOID (ml) | PVRU (ml) | | Qmax (ml/sec) | TIME TO PEAK (sec) |
| 54 | 257482 | 62 | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 15 | 4.4 | 156 | 32 | 0.9 | 20 | 406 | 74.7 | 0.45 | 15 | 49 |
| 55 | 889695 | 55 | 2 | 3 | 1 | 2 | 1 | 4 | inguinal hernia | 0 | 12.8 | 4.8 | 258 | 26 | 0.7 | 29 | 189 | 104 | 0.78 | 14 | 7 |
| 56 | 742105 | 54 | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 13.2 | 11.2 | 168 | 36 | 0.9 | 79 | 238 | 10 | 1.52 | 10 | 12 |
| 57 | 106239 | 62 | 2 | 2 | 1 | 36 | 1 | 6 | 0 | 0 | 11.2 | 8.9 | 245 | 40 | 1.2 | 70 | 264 | 0 | 1.6 | 7 | 13 |
| 58 | 741606 | 50 | 2 | 3 | 3,6 | 3 | 0 | 0 | 0 | 0 | 13.6 | 8.1 | 150 | 28 | 0.8 | 12 | 560 | 363 | 0.36 | 4 | 41 |
| 59 | 749656 | 64 | 2 | 2 | 2,3 | 2 | 0 | 0 | 0 | 0 | 11.1 | 10.6 | 196 | 58 | 0.9 | 40 | 620 | 400 | 4.15 | 6 | 1 |
| 60 | 756947 | 55 | 2 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 12.9 | 8.1 | 220 | 28 | 0.8 | 30 | 170 | 20 | 0.86 | 4 | 4 |
| 61 | 578316 | 53 | 2 | 3 | 6 | 3 | 0 | 0 | 0 | 0 | 13.2 | 11.2 | 252 | 32 | 0.9 | 57 | 250 | 60 | 0.75 | 19 | 16 |
| 62 | 435108 | 66 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 11.2 | 8.6 | 169 | 32 | 0.7 | 23 | 254 | 0 | 4.98 | 20 | 4 |
| 63 | 777878 | 56 | 2 | 3 | 1 | 3 | 0 | 0 | 0 | 0 | 13.6 | 5.6 | 245 | 28 | 0.7 | 11 | 300 | 30 | 0.14 | 16 | 15 |
| 64 | 798891 | 73 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 12.8 | 6.2 | 231 | 31 | 0.9 | 52 | 264 | 0 | 0.68 | 7 | 6 |
| 65 | 801866 | 62 | 2 | 2 | 5 | 1 | 1 | 2 | 0 | 0 | 14.6 | 8.6 | 234 | 28 | 0.7 | 30 | 322 | 30 | 0.66 | 7 | 5 |
| 66 | 465585 | 67 | 2 | 2 | 2 | 3 | 0 | 0 | b/l inginal hernia | 0 | 15.4 | 7 | 176 | 32 | 0.84 | 120 | 410 | 216 | 1.1 | 7 | 7 |
| 67 | 96941 | 74 | 1 | 2 | 1,4 | 2 | 1 | 10 | 0 | 0 | 13.6 | 6.9 | 167 | 25 | 0.9 | 84 | 230 | 40 | 6.6 | 4 | 57 |
| 68 | 727447 | 53 | 2 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 12.6 | 5.3 | 156 | 30 | 0.8 | 45 | 450 | 20 | 0.9 | 12 | 18 |
| 69 | 825521 | 60 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 11.4 | 4.7 | 150 | 22 | 0.62 | 75 | 338 | 128 | 13.45 | 13 | 3 |
| 70 | 861769 | 58 | 2 | 3 | 2 | 3 | 0 | 0 | 0 | haemorroidectomy | 13.2 | 6.6 | 310 | 30 | 1.1 | 21 | 380 | 10 | 0.81 | 11 | 5 |
| 71 | 875122 | 55 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 14.1 | 8.4 | 186 | 23 | 0.76 | 66 | 366 | 130 | 5.66 | 13 | 4 |
| 72 | 804692 | 58 | 2 | 2 | 4 | 1 | 0 | 0 | htn | 0 | 14.3 | 7.1 | 173 | 28 | 1 | 35 | 180 | 30 | 0.86 | 7 | 2 |
| 73 | 872323 | 56 | 2 | 3 | 2,3 | 2 | 0 | 0 | 0 | 0 | 13.4 | 5.6 | 215 | 24 | 0.68 | 30 | 330 | 27 | 0.44 | 8 | 7 |
| 74 | 773925 | 62 | 2 | 2 | 6 | 24 | 0 | 0 | 0 | lap. Colonic resection for intussuseption | 13 | 7.6 | 238 | 13 | 0.63 | 85 | 300 | 120 | 0.86 | 12 | 38 |
| 75 | 869902 | 68 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 12 | 8.3 | 150 | 70 | 1.6 | 24 | 290 | 150 | 1.71 | 13 | 8 |
| 76 | 309801 | 66 | 2 | 2 | 2,3 | 3 | 1 | 10 | 0 | 0 | 13.1 | 5.6 | 186 | 28 | 0.86 | 52 | 288 | 38 | 42 | 10 | 5 |
| 77 | 800629 | 68 | 2 | 2 | 3 | 4 | 0 | 0 | 0 | 0 | 11.1 | 14 | 461 | 39 | 0.95 | 41 | 412 | 145 | 1.2 | 8 | 19 |
| 78 | 213605 | 62 | 2 | 2 | 7 | 1 | 0 | 0 | incisional hernia | 0 | 12.3 | 5.6 | 214 | 28 | 0.86 | 30 | 110 | 0 | 0.86 | 12 | 2 |
| 79 | 792054 | 80 | 1 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 12.6 | 8.6 | 186 | 24 | 1.7 | 24 | 312 | 121 | 0.9 | 8 | 4 |
| 80 | 159764 | 64 | 2 | 2 | 1 | 8 | 1 | 10 | 0 | 0 | 13.5 | 5.8 | 214 | 28 | 1.1 | 30 | 280 | 120 | 0.8 | 13 | 10 |
| 81 | 593063 | 65 | 2 | 2 | 2,6 | 2 | 0 | 0 | 0 | 0 | 13.6 | 5.4 | 165 | 24 | 1.1 | 42 | 250 | 120 | 48 | 12 | 5 |
| 82 | 742105 | 54 | 2 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 14.1 | 6.5 | 245 | 26 | 0.92 | 79 | 160 | 10 | 1.2 | 10 | 5 |
| 83 | 119406 | 60 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 13.5 | 8.6 | 216 | 28 | 0.7 | 20 | 312 | 112 | 15 | 12 | 3 |
| 84 | 742805 | 57 | 2 | 3 | 2 | 3 | 0 | 0 | 0 | 0 | 10.6 | 6 | 124 | 14 | 0.63 | 53 | 346 | 50 | 19 | 12 | 34 |
| 85 | 752331 | 75 | 1 | 1 | 2,3 | 2 | 0 | 0 | 0 | 0 | 14 | 8.6 | 214 | 28 | 0.7 | 54 | 205 | 80 | 1.2 | 4 | 37 |
| 86 | 977439 | 60 | 2 | 2 | 3 | 2 | 1 | 4 | 0 | 0 | 13.7 | 7.3 | 171 | 29 | 1.2 | 30 | 294 | 198 | 0.36 | 9 | 62 |
| 87 | 171220 | 59 | 2 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 10.3 | 5.7 | 213 | 34 | 0.72 | 38 | 284 | 35 | 0.87 | 8 | 23 |
| 88 | 946652 | 61 | 2 | 2 | 2,3 | 3 | 1 | 10 | 0 | 0 | 14.1 | 6.5 | 189 | 35 | 0.78 | 49 | 380 | 36 | 0.42 | 10 | 15 |
| 89 | 210520 | 65 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 12.4 | 4.8 | 255 | 45 | 1.03 | 28 | 264 | 110 | 1.68 | 13 | 23 |
| 90 | 953054 | 55 | 1 | 3 | 10 | 10 | 0 | 0 | 0 | 0 | 15.3 | 10.5 | 197 | 23 | 0.68 | 25 | 296 | 16 | 0.75 | 13 | 93 |
| 91 | 54886 | 64 | 2 | 2 | 3 | 4 | 1 | 10 | 0 | 0 | 12.1 | 6.7 | 189 | 39 | 1.04 | 32 | 386 | 50 | 0.78 | 8 | 24 |
| 92 | 667154 | 57 | 1 | 3 | 2 | 4 | 0 | 3 | 0 | 0 | 9.8 | 8.3 | 224 | 33 | 0.82 | 38 | 230 | 20 | 1.42 | 9 | 42 |
| 93 | 29526 | 67 | 2 | 3 | 3 | 2 | 1 | 2 | htn | 0 | 10.5 | 5.9 | 216 | 42 | 1.2 | 48 | 285 | 48 | 2.04 | 8 | 7 |
| 94 | 165877 | 78 | 2 | 0 | 2 | 5 | 1 | 4 | 0 | 0 | 13.5 | 6.8 | 274 | 35 | 1.08 | 36 | 248 | 50 | 1.84 | 6 | 78 |

| S. NO | MRD | UROFLOWMETERY | | | | IPSS | | | | | | | | | | | VPSS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VOIDED VOLUME (ml) | FLOW TIME (sec) | VOIDING TIME (sec) | Qave (ml/sec) | INCOMPLETE EMPTY | FREQUENCY | INTERMITTENCY | URGENCY | WEAK STREAM | STRAINING | NOCTURIA | IPSS SCORE | QOL | FILLED BY | TIME TAKEN (sec) | STREAM | DAY TIME FREQUENCY | NIGHT TIME FREQUENCY | VPSS SCORE | QOL | FILLED BY | TIME TAKEN (sec) |
| 54 | 257482 | 317 | 49 | 51 | 6 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 8 | 1 | 2 | 128 | 2 | 5 | 1 | 8 | 1 | 2 | 31 |
| 55 | 889695 | 218 | 30 | 30 | 7 | 0 | 4 | 2 | 2 | 0 | 2 | 4 | 14 | 5 | 2 | 124 | 1 | 6 | 4 | 11 | 4 | 2 | 32 |
| 56 | 742105 | 210 | 52 | 58 | 7 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 5 | 2 | 2 | 128 | 1 | 3 | 1 | 5 | 2 | 2 | 28 |
| 57 | 106239 | 195 | 51 | 58 | 8 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 5 | 1 | 3 | 126 | 1 | 3 | 2 | 6 | 1 | 2 | 30 |
| 58 | 741606 | 131 | 62 | 62 | 2 | 1 | 3 | 1 | 0 | 3 | 2 | 4 | 14 | 5 | 2 | 132 | 3 | 6 | 4 | 13 | 5 | 2 | 34 |
| 59 | 749656 | 144 | 48 | 78 | 3 | 5 | 3 | 4 | 1 | 4 | 3 | 3 | 23 | 6 | 3 | 136 | 5 | 6 | 4 | 15 | 6 | 2 | 38 |
| 60 | 756947 | 150 | 69 | 69 | 5 | 1 | 5 | 3 | 0 | 2 | 1 | 3 | 15 | 4 | 2 | 240 | 3 | 3 | 3 | 9 | 6 | 2 | 36 |
| 61 | 578316 | 197 | 16 | 25 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 2 | 132 | 2 | 3 | 1 | 6 | 2 | 2 | 31 |
| 62 | 435108 | 276 | 30 | 30 | 9 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 1 | 3 | 128 | 3 | 5 | 1 | 9 | 2 | 2 | 35 |
| 63 | 777878 | 253 | 33 | 50 | 8 | 4 | 0 | 0 | 0 | 1 | 1 | 2 | 8 | 2 | 2 | 130 | 2 | 3 | 2 | 7 | 2 | 2 | 30 |
| 64 | 798891 | 147 | 415 | 58 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 5 | 1 | 1 | 122 | 2 | 4 | 2 | 8 | 2 | 3 | 26 |
| 65 | 801866 | 159 | 39 | 52 | 4 | 1 | 0 | 1 | 1 | 4 | 1 | 2 | 10 | 1 | 2 | 132 | 5 | 5 | 2 | 12 | 2 | 2 | 31 |
| 66 | 465585 | 204 | 51 | 57 | 4 | 4 | 3 | 0 | 0 | 2 | 0 | 1 | 10 | 1 | 3 | 136 | 3 | 6 | 1 | 10 | 1 | 2 | 33 |
| 67 | 96941 | 175 | 105 | 170 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 33 | 4 | 3 | 120 | 4 | 5 | 3 | 12 | 4 | 2 | 56 |
| 68 | 727447 | 418 | 70 | 90 | 5 | 0 | 2 | 0 | 0 | 0 | 2 | 3 | 7 | 1 | 2 | 132 | 2 | 6 | 3 | 11 | 2 | 2 | 38 |
| 69 | 825521 | 167 | 37 | 52 | 4 | 0 | 2 | 1 | 2 | 2 | 0 | 5 | 12 | 4 | 3 | 136 | 3 | 5 | 5 | 13 | 4 | 2 | 36 |
| 70 | 861769 | 264 | 39 | 45 | 5 | 2 | 4 | 2 | 4 | 1 | 2 | 5 | 20 | 5 | 2 | 130 | 3 | 6 | 6 | 15 | 5 | 2 | 32 |
| 71 | 875122 | 178 | 31 | 31 | 8 | 3 | 2 | 0 | 0 | 1 | 1 | 2 | 9 | 1 | 2 | 133 | 3 | 3 | 2 | 8 | 4 | 2 | 34 |
| 72 | 804692 | 153 | 44 | 45 | 3 | 0 | 0 | 1 | 4 | 5 | 4 | 0 | 14 | 1 | 3 | 128 | 4 | 5 | 1 | 10 | 2 | 2 | 30 |
| 73 | 872323 | 270 | 52 | 57 | 5 | 0 | 3 | 0 | 2 | 4 | 0 | 3 | 12 | 1 | 2 | 126 | 4 | 6 | 3 | 13 | 1 | 2 | 32 |
| 74 | 773925 | 370 | 60 | 71 | 6 | 0 | 3 | 4 | 0 | 2 | 1 | 2 | 12 | 2 | 3 | 130 | 2 | 6 | 2 | 10 | 2 | 2 | 40 |
| 75 | 869902 | 276 | 42 | 43 | 7 | 0 | 4 | 4 | 2 | 3 | 2 | 2 | 17 | 1 | 3 | 136 | 3 | 6 | 2 | 11 | 2 | 2 | 38 |
| 76 | 309801 | 154 | 26 | 36 | 6 | 4 | 4 | 3 | 3 | 3 | 2 | 3 | 22 | 5 | 3 | 134 | 4 | 6 | 4 | 14 | 5 | 2 | 34 |
| 77 | 800629 | 273 | 60 | 73 | 5 | 5 | 4 | 4 | 5 | 5 | 5 | 4 | 32 | 4 | 3 | 140 | 4 | 5 | 4 | 13 | 4 | 2 | 38 |
| 78 | 213605 | 159 | 36 | 42 | 4 | 4 | 3 | 3 | 1 | 2 | 2 | 4 | 19 | 5 | 2 | 136 | 4 | 5 | 4 | 13 | 4 | 2 | 36 |
| 79 | 792054 | 151 | 49 | 54 | 3 | 0 | 2 | 0 | 1 | 3 | 1 | 5 | 12 | 3 | 1 | 120 | 4 | 3 | 6 | 13 | 3 | 1 | 22 |
| 80 | 159764 | 187 | 26 | 32 | 7 | 5 | 2 | 0 | 2 | 2 | 1 | 1 | 13 | 2 | 2 | 133 | 3 | 5 | 2 | 10 | | 2 | 32 |
| 81 | 593063 | 234 | 41 | 44 | 6 | 2 | 3 | 1 | 1 | 1 | 1 | 0 | 9 | 3 | 3 | 136 | 1 | 5 | 2 | 8 | 3 | 2 | 36 |
| 82 | 742105 | 157 | 40 | 49 | 4 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 5 | 2 | 2 | 130 | 1 | 3 | 1 | 5 | 2 | 2 | 34 |
| 83 | 119406 | 199 | 39 | 47 | 5 | 0 | 5 | 0 | 5 | 4 | 0 | 5 | 19 | 5 | 2 | 138 | 5 | 6 | 6 | 17 | 5 | 2 | 40 |
| 84 | 742805 | 313 | 68 | 92 | 5 | 2 | 2 | 2 | 1 | 3 | 3 | 4 | 17 | 4 | 2 | 128 | 2 | 6 | 4 | 12 | 3 | 2 | 28 |
| 85 | 752331 | 150 | 78 | 417 | 2 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 4 | 3 | 1 | 116 | 4 | 5 | 3 | 12 | 4 | 1 | 22 |
| 86 | 977439 | 157 | 36 | 96 | 4 | 1 | 3 | 1 | 0 | 4 | 1 | 3 | 13 | 3 | 2 | 136 | 3 | 5 | 3 | 11 | 3 | 2 | 36 |
| 87 | 171220 | 242 | 80 | 101 | 3 | 0 | 1 | 2 | 0 | 4 | 2 | 2 | 11 | 1 | 2 | 170 | 4 | 5 | 2 | 11 | 2 | 2 | 33 |
| 88 | 946652 | 416 | 77 | 102 | 5 | 0 | 4 | 3 | 3 | 3 | 2 | 3 | 18 | 5 | 3 | 134 | 4 | 6 | 4 | 14 | 5 | 2 | 34 |
| 89 | 210520 | 213 | 34 | 50 | 6 | 0 | 4 | 4 | 2 | 3 | 2 | 2 | 17 | 1 | 3 | 118 | 3 | 6 | 2 | 11 | 2 | 2 | 37 |
| 90 | 953054 | 233 | 40 | 117 | 6 | 1 | 2 | 3 | 0 | 2 | 3 | 1 | 12 | 1 | 2 | 139 | 2 | 5 | 2 | 9 | 2 | 2 | 25 |
| 91 | 54886 | 364 | 90 | 104 | 4 | 5 | 2 | 0 | 2 | 2 | 1 | 1 | 13 | 2 | 3 | 140 | 2 | 5 | 3 | 10 | 2 | 2 | 32 |
| 92 | 667154 | 219 | 53 | 63 | 4 | 1 | 2 | 0 | 1 | 2 | 0 | 4 | 10 | 1 | 2 | 180 | 3 | 6 | 3 | 12 | 2 | 2 | 45 |
| 93 | 29526 | 216 | 42 | 42 | 8 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 1 | 3 | 135 | 3 | 5 | 1 | 9 | 2 | 2 | 40 |
| 94 | 165877 | 205 | 61 | 61 | 4 | 0 | 2 | 2 | 0 | 4 | 2 | 4 | 14 | 1 | 1 | 124 | 3 | 3 | 4 | 10 | 1 | 2 | 30 |

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No. BFUHS/2K19p-TH/ 10736

Date 12/6/19

The Principal,
DMC, Ludhiana.

**Subject:** Approval of Plan of Thesis.

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.05.2019 has approved the plan of thesis of **Dr. Tariq Ahmad Mir**, a student of your college for **MCh Urology** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

**Visual prostate symptom score versus international prostate symptom score in men with lower urinary tract symptoms**

Supervisor
Dr. Sandeep Sharma
Prof. & Head,
Dept. of Urology,
DMCH, Ludhiana.

Co-Supervisor
Dr. Arvind Goyal
Assoc. Prof.,
Dept. of Urology,
DMCH, Ludhiana.

The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,( if any).

S P Singh

Dr. S P Singh MS(Oph)
Controller of Examinations

*Note :*

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*
2. *The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

# VISUAL PROSTATE SYMPTOM SCORE VERSUS INTERNATIONAL PROSTATE SYMPTOM SCORE IN MEN WITH LOWER URINARY TRACT SYMPTOMS

## THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MCh

in

UROLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES
FARIDKOT

APRIL, 2019

DR TARIQ AHMAD MIR

DEPARTMENT OF UROLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL, LUDHIANA

# ABSTRACT OF PLAN OF THESIS

| | |
|---|---|
| Title | Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms |
| For the degree of | MCh |
| Name of the candidate | Dr Tariq Ahmad Mir |
| Supervisor | Dr. Sandeep Sharma, Professor & Head, Department of Urology, Dayanand Medical College and Hospital, Ludhiana |
| Co-supervisor | Dr. Arvind Goyal, Associate Professor, Department of Urology, Dayanand Medical College and Hospital, Ludhiana |
| Institution | Dayanand Medical College & Hospital, Ludhiana |
| University | Baba Farid University of Health Sciences, Faridkot |

**Introduction:** International Prostate Symptom Score (IPSS) and New Visual Prostate Symptom Score (VPSS) are used to assess the lower urinary tracts symptoms (LUTSs) in men. However, IPSS symptom score has a drawback that the patients with lower educational levels experience greater difficulty completing it, VPSS differs from the IPSS in presenting the AUA questionnaire in a pictorial format enabling the old and often illiterate men to assess their urinary problems in a much easier and a reliable manner.

**Aim of Study:** To compare IPSS and VPSS in Indian men prospectively and their efficacy with urodynamic evaluation of the patients.

**Materials & methods:** The prospective study will enroll male patients over 40 years of age for 1 year. All the patients will be requested to complete the IPSS and VPSS. IPSS was translated to Punjabi language as it is local language in the region. The urodynamic study will performed on all the patients with a uroflowmeter. Efficacy of two scoring system to quantify the symptoms of LUTS in BPH will be compared.

**Clinical Significance:** The VPSS present the AUA questionnaire in a pictorial format enabling the old and often illiterate men to assess their urinary problems in a much easier and a reliable manner. Moreover, a new concept of QoL added in the VPSS helps to better understand the symptoms and its effect on patients day-to-day life.

**Keywords:** Benign prostrate hyperplasia, lower urinary tracts symptoms, International Prostate Symptom Score (IPSS), Visual Prostate Symptom Score.

| (Signature) | (Signature) | (Signature) | (Signature) |
|---|---|---|---|
| Candidate | Co-supervisor | Supervisor | Principal |

## CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled "**Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms**" exist in the Department of Urology Dayanand medical college and hospital and will be provided to the candidate. We will see that the data being included in the thesis are genuine and is collected by the candidate himself/herself under our supervision and guidance.

**Supervisor**

**Dr. Sandeep Sharma**
Professor & Head
Department of Urology
DMCH, Ludhiana

**Co-Supervisors**

**Dr. Arvind Goyal**
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Department of Urology
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**Head of the Department**

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Place: Ludhiana

Date: 20/4/19

# APPROVAL PROFORMA
# BY RESEARCH & ETHICAL COMMITTEE
# DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

| | |
|---|---|
| **Name of candidate** | Dr Tariq Ahmad Mir |
| **Department** | Urology |
| **Topic of Thesis** | Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms. |
| **Likely date of appearing in Mch examination** | 2021 |
| **Date of enrollment** | August, 2018 |
| **Name of Head of Department** | Dr. Sandeep Sharma |
| 1) **Supervisor**<br><br>2) **Co-Supervisor** | Dr. Sandeep Sharma<br><br>Dr. Arvind Goyal |
| **Signature of Members of Research Committee with Stamp** | **Signature of Members of Ethics Committee with Stamp** |
| 1. HOD Pharmacology | 1. HOD Physiology |
| 2. HOD Surgery | 2. HOD Pathology |
| 3. HOD Pathology | 3. HOD Pharmacology |
| 4. HOD Medicine | 4. HOD SPM |
| 5. Dean Academics | 5. HOD Medicine |
| 6. Vice Principal | 6. HOD Surgery |
| | 7. HOD Obst. & Gynae. |
| | 8. Legal Expert |
| | 9. Secretary, IEC |
| | 10. Dean Academics |
| | 11. Vice Principal |
| | 12. Principal |

**Approved: Yes / No**

**Chairperson**
**Research Committee**

Chairperson
Research Committee

**Approved: Yes / ~~No~~**

**Chairperson**
**Ethics Committee**

Chairperson
Ethics Committee

# BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

## PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

| | | |
|---|---|---|
| 1 | NAME OF THE CANDIDATE AND ADDRESS | Dr Tariq Ahmad Mir<br>Sogam, Chadoora, Budgam,<br>Jammu and Kashmir, 191113 |
| 2 | NAME OF THE INSTITUTE | Dayanand medical college and hospital, Ludhiana |
| 3 | COURSE OF STUDY AND SUBJECT | MCh Urology |
| 4 | DATE OF ADMISSION OF COURSE | 28/08/2018 |
| 5 | TITLE OF THE TOPIC | Visual Prostate Symptom Score versus International Prostate Symptom Score in Men with Lower Urinary Tract Symptoms |

## 6 BRIEF RESUME OF THE INTENDED WORK

### 6.1 NEED FOR THE STUDY

Benign prostrate hyperplasia (BPH) is a leading source of healthcare problem in aging men around the world including India.[1] Both International Prostate Symptom Score (IPSS) and New Visual Prostate Symptom Score (VPSS) are used to assess the lower urinary tracts symptoms (LUTSs) in men.

The IPSS was designed to be an easy, self-administered questionnaire which can be used even in primary health care clinics. It represents an attempt to convert subjective symptoms into objective numbers that can be further quantified.[2] IPSS includes 7 questions regarding symptoms.

However, this symptom score has a drawback that the patients with lower educational levels experience greater difficulty completing the IPSS.[3,4] Thus, in country like ours, especially rural areas, with low educational level and poor socioeconomic status, this problem is more in magnitude rendering this symptom score very difficult to comprehend and used by the people. IPSS is difficult to understand even for men with a high level of education.[5,6] Getting help from a physician, a nurse, or a family member to complete the IPSS might cause miscommunication, influence the patient's responses, and introduce the risk of bias. It has been translated into many languages, but the translation of the IPSS into other languages needs to be validated. Moreover, elderly men can have visual impairments that may cause difficulty in reading the IPSS questions.[7]

. The VPSS differs from the IPSS in presenting the AUA questionnaire in a pictorial format enabling the old and often illiterate men to assess their urinary problems in a much easier and a reliable manner.[8] VPSS takes less time in

completing9. Visual prostate symptom score (VPSS) uses pictograms to assess four IPSS questions related to frequency, nocturia, weak stream, and QoL8. Moreover, a new concept of QoL added in the VPSS helps to better understand the symptoms and its effect on patients day-to-day life.

## 6.2 REVIEW OF LITERATURE

The IPSS was designed to be an easy, self-administered questionnaire which can be used even in primary health care clinics. It represents an attempt to convert subjective symptoms into objective numbers that can be further quantified.[2] IPSS is a validated tool with excellent test-retest reliability.[10]

IPSS includes 7 questions regarding symptoms. The degree of severity of symptoms is noted from 0 to 5. The maximum score in the IPSS is 35. The symptoms are classified into:

I. Mildly symptomatic: Score from 0 to 7

II. Moderately symptomatic: Score from 8 to 19

III. Severely symptomatic: Score from 20 to 35.

A separate question for QoL is also present in the IPSS questionnaire, and the degree of impairment of QoL is noted from 0 to 6. The patients who were unable to complete the questionnaire on their own, they were assisted by a reliable relative/doctor.

# INTERNATIONAL PROSTATE SYMPTOM SCORE (I-PSS)

| Patient Name:<br>Date: | Not At All | Less Than 1 Time In 5 | Less Than Half The Time | About Half The Time | More Than Half The Time | Almost Always | YOUR SCORE |
|---|---|---|---|---|---|---|---|
| **1. Incomplete Emptying**<br>Over the past month, how often have you had a sensation of not emptying your bladder completely after you finish urinating? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **2. Frequency**<br>Over the past month, how often have you had to urinate again less than two hours after you have finished urinating? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **3. Intermittency**<br>Over the past month, how often have you found you stopped and started again several times when you urinated? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **4. Urgency**<br>Over the past month, how often have you found it difficult to postpone urination? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **5. Weak Stream**<br>Over the last month, how often have you had a weak urinary stream? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **6. Straining**<br>Over the past month, how often have you had to push or strain to begin urination? | 0 | 1 | 2 | 3 | 4 | 5 | |

| | None | Once | Twice | 3 times | 4 times | 5 or more | YOUR SCORE |
|---|---|---|---|---|---|---|---|
| **7. Nocturia**<br>Over the past month how many times did you most typically get up each night to urinate from the time you went to bed until the time you got up in the morning? | 0 | 1 | 2 | 3 | 4 | 5 | |
| **Total I-PSS Score** | | | | | | | |

| **Quality of Life due to Urinary Symptoms** | Delighted | Pleased | Mostly satisfied | Mixed | Mostly unhappy | Unhappy | Terrible |
|---|---|---|---|---|---|---|---|
| If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

## ਇੰਟਰਨੈਸ਼ਨਲ ਪ੍ਰੋਸਟੇਟ ਸਿਮਟਮ ਸਕੋਰ (ਆਈ-ਪੀ ਐਸ ਐਸ ਸਕੋਰ)

| ਮਰੀਜ਼ ਦਾ ਨਾਮ:<br>ਮਿਤੀ: | ਬਿਲਕੁਲ ਨਹੀਂ | 5 ਵਿਚੋ ਘਟੋ ਘੱਟ ਇਕ ਵਾਰ | ਅੱਧ ਤੋਂ ਘੱਟ ਸਮਾਂ | ਅੱਧ ਸਮਾਂ ਲਈ | ਅੱਧ ਨਾਲੋ ਜ਼ਿਆਦਾ ਸਮਾਂ | ਲਗਭਗ ਹਮੇਸ਼ਾ | ਤੁਹਾਡਾ ਸਕੋਰ |
|---|---|---|---|---|---|---|---|
| 1. ਅਧੂਰਾ ਖਾਲੀ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਦੇ ਦੌਰਾਨ, ਤੁਹਾਨੂੰ ਪਿਸ਼ਾਬ ਕਰਨ ਤੋ ਬਾਅਦ ਕਿੰਨੀ ਵਾਰੀ ਮਹਿਸੂਸ ਹੋਇਆ ਹੈ ਕਿ ਤੁਹਾਡਾ ਮਸਨਾ ਖਾਲੀ ਨਹੀਂ ਹੋ ਰਿਹਾ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| 2. ਆਵਿਰਤੀ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਦੇ ਦੌਰਾਨ, ਪਿਸ਼ਾਬ ਕਰਨ ਤੋਂ ਬਾਅਦ ਦੇ ਘੰਟੇ ਤੋਂ ਦੀ ਘੱਟ ਸਮੇਂ ਵਿਚ ਤੁਹਾਨੂੰ ਕਿੰਨੀ ਵਾਰ ਪਿਸ਼ਾਬ ਕਰਨਾ ਪਿਆ ਹੈ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| 3. ਅੰਤਰਾਲ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਦੇ ਦੌਰਾਨ, ਤੁਸੀਂ ਕਿੰਨੀ ਵਾਰ ਦੇਖਿਆ ਹੈ ਕਿ ਜਦੋ ਤੁਸੀਂ ਪਿਸ਼ਾਬ ਕੀਤਾ ਸੀ ਤਾਂ ਪਿਸ਼ਾਬ ਰੁਕਣ ਤੋਂ ਬਾਅਦ ਦੁਬਾਰਾ ਸ਼ੁਰੂ ਹੋ ਗਿਆ ਸੀ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| 4. ਜਰੂਰਤ/ ਜਲਦੀ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਦੇ ਦੌਰਾਨ, ਤੁਹਾਨੂੰ ਕਿੰਨੀ ਵਾਰ ਪਿਸ਼ਾਬ ਰੋਕਣਾ ਮੁਸ਼ਕਲ ਲੱਗ ਰਿਹਾ ਹੈ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| 5. ਕਮਜ਼ੋਰ ਧਾਰ/ ਪ੍ਰਵਾਹ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਵਿੱਚ, ਕਿੰਨੀ ਵਾਰ ਤੁਹਾਡੇ ਪਿਸ਼ਾਬ ਦੀ ਧਾਰ/ ਪ੍ਰਵਾਹ ਕਮਜ਼ੋਰ ਸੀ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| 6. ਤਣਾਅ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਵਿੱਚ, ਪਿਸ਼ਾਬ ਸ਼ੁਰੂ ਕਰਨ ਲਈ ਤੁਹਾਨੂੰ ਕਿੰਨੀ ਵਾਰੀ ਧੱਕਾ ਕਰਨਾ ਪਿਆ ਜਾਂ ਦਬਾਅ ਪਾਉਣਾ ਪਿਆ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | ਕੋਈ ਨਹੀਂ | ਇਕ ਵਾਰ | ਦੋ ਵਾਰ | 3 ਵਾਰ | 4 ਵਾਰ | 5 ਜਾਂ ਇਸ ਤੋਂ ਵੱਧ | ਤੁਹਾਡਾ ਸਕੋਰ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7. ਰਾਤ ਨੂੰ ਪਿਸ਼ਾਬ ਅਉਣਾ<br>ਪਿਛਲੇ ਮਹੀਨੇ ਵਿੱਚ ਕਿੰਨੀ ਵਾਰ ਤੁਸੀਂ ਰਾਤ ਸੋਣ ਦੇ ਸਮੇਂ ਤੋ ਲੈ ਕੇ ਸਵੇਰੇ ਉਠਣ ਸਮੇਂ ਤਕ ਤੁਹਾਨੂੰ ਪਿਸ਼ਾਬ ਕਰਨ ਲਈ ਉਠਣਾ ਪਿਆ? | 0 | 1 | 2 | 3 | 4 | 5 | |
| ਕੁੱਲ ਆਈ-ਪੀ ਐਸ ਐਸ ਸਕੋਰ | | | | | | | |
| ਪਿਸ਼ਾਬ ਦੇ ਲੱਛਣ ਦੇ ਕਾਰਨ ਜੀਵਨ ਦੀ ਗੁਣਵੱਤਾ | ਬਹੁਤ ਖੁਸ਼ | ਖੁਸ਼ | ਜਿਆਦਾਤਰ ਸੰਤੁਸ਼ਟ | ਮਿਕਸਡ | ਜ਼ਿਆਦਾਤਰ ਦੁਖੀ | ਨਾਖੁਸ਼ | ਭਿਆਨਕ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ਜੇ ਤੁਸੀਂ ਆਪਣੀ ਬਾਕੀ ਦੀ ਜ਼ਿੰਦਗੀ ਨੂੰ ਆਪਣੇ ਪਿਸ਼ਾਬ ਦੀ ਬਿਮਾਰੀ ਨਾਲ ਬਿਤਾਉਣ ਦੀ ਕੋਸ਼ਿਸ਼ ਕਰਦੇ ਹੋ, ਤਾਂ ਹੁਣ ਤੁਸੀਂ ਇਸ ਬਾਰੇ ਕੀ ਸੋਚੋਦੇ ਹੋ? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | | | | |

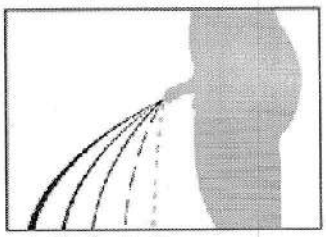
van der Walt et al.[8] developed a visual prostate symptom score (VPSS) using pictograms to assess four IPSS questions related to frequency, nocturia, weak stream, and QoL. VPSS shows significant positive correlation with IPSS.[8,11-14]

## VPSS (Visual Prostate Symptom Score)

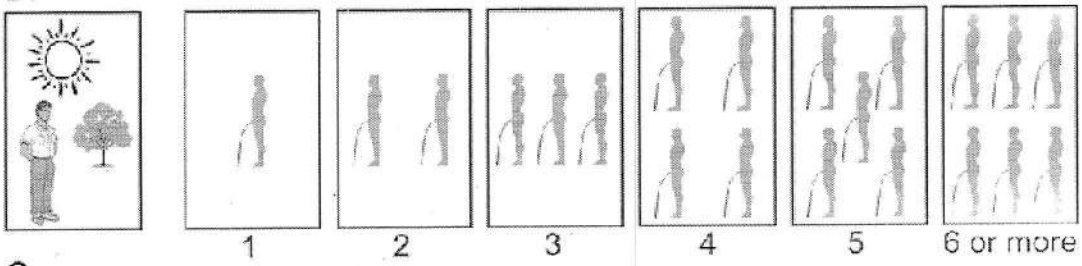
© Stellenbosch University

**Patient's Name:** **Date:**
**Pasiënt se Naam:** ..... **Datum:** .....

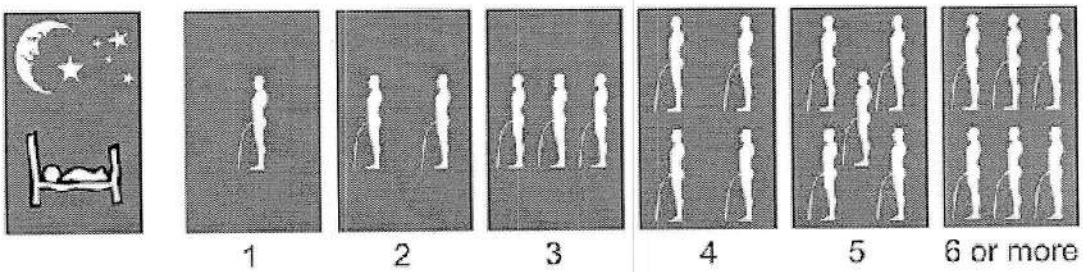
**A:**



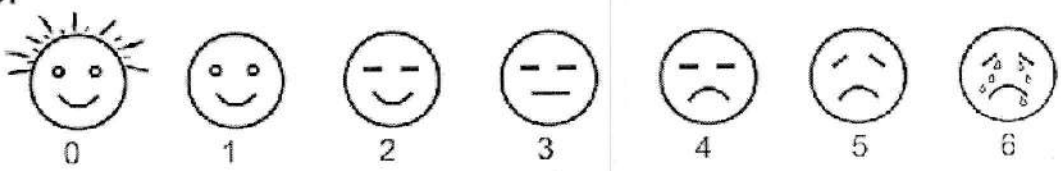

**B:**




**C:**




**D:**




**A = ..... B = ..... C = ..... D = ..... A + B + C = .....**

The degree of severity of these symptoms is from 0 to 6. Maximum score on VPSS is 24 and the symptoms are divided into three categories:

I. Mildly symptomatic: <8

II. Moderately symptomatic: 9-16

III. Severely symptomatic: 17-23.

VPSS and Q max and the VPSS and Q average are negatively correlated to each other.[8.9]

## 6.3 AIMS AND OBJECTIVES OF THE STUDY

The present study is planned to compare IPSS and VPSS in Indian men having LUTS prospectively and to compare their efficacy with urodynamic evaluation of the patients

7

## MATERIALS AND METHODS

### 7.1 SOURCE OF DATA

This prospective study will be conducted in Department of Urology, Dayanand Medical College & Hospital from April 2019 to March 2020.

Those part of the study shall have to satisfy the inclusion criteria and none of the exclusion criteria.

### 7.2 METHOD OF COLLECTION OF DATA

**Inclusion criteria**

Male patients of age >40 years complaining of LUTS due to BPH.

**Exclusion criteria**

Patients having Voided volume <150 ml on uroflowmetry and with chronic urinary retention having derranaged renal function tests.

A thorough history will be recorded in all the cases and detailed general and systemic examination will be carried out. Patient's educational status will be noted. Serum prostate-specific antigen assay and ultrasonography will carried out in all the cases to measure the prostrate size.

All the patients will be requested to complete the IPSS comprising the 7 questions. The patients who will be unable to complete the questionnaire on their own, they will be assisted by a reliable relative/doctor.

The patients will be also requested to complete the VPSS comprising four pictograms to evaluate the symptoms of BPH. The degree of severity of these symptoms will noted from 0 to 6. Need for assistance, time to fill score system will be noted.

The urodynamic study will performed on all the patients with a uroflowmeter. Two parameters of uroflowmetry will measured:

I. Qmax, i.e., maximum urine flow rate expressed in ml/s

II. Qavrg, i.e., average urine flow rate expressed in ml/s.

The IPSS total score and VPSS total score will be analyzed with these two urodynamic parameters, and their efficacy to quantify the symptoms of LUTS in BPH will be compared using these two parameters.

**7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.**

Yes.

The urodynamic study will performed on all the patients with a uroflowmeter. Two parameters of uroflowmetry will measured:

I. Qmax, i.e., maximum urine flow rate expressed in ml/s

II. Qavrg, i.e., average urine flow rate expressed in ml/s.

7.4 **HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?**

Yes, Attached herewith.

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## PROFORMA

Sr No._____

Name_____ Age_____

MRD_____

C/O_____

_____

HOPI_____

_____

_____

_____

_____

Pasthistory_____

_____

PersonalHistory_____

_____

Other significant history_____

**Signature of Candidate** **Signature of Supervisor**

IPSS:-

VPSS:-

**General physical examination**

P/A

DRE

**Signature of Candidate**

**Signature of Supervisor**

**INVESTIGATION**

Hb TLC PLT

Sr Urea Creatinine

**Urine Examination.**

**Ultrasonography- KUB……..**

**Serum prostatic specific antigen……..**

**Uroflowmetery:-** $Q_{max}$ ..... $Q_{ave}$.....

**Any other investigation**.....

**Signature of Candidate** **Signature of Supervisor**

## INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o.....

.....am willing to participate in the study **"VISUAL PROSTATE SYMPTOM SCORE VERSUS INTERNATIONAL PROSTATE SYMPTOM SCORE IN MEN WITH LOWER URINARY TRACT SYMPTOMS"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

.....
Signature of the Witness

Name:

.....
Signature of the patient

**Signature of Candidate**

**Signature of Supervisor**

## मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"VISUAL PROSTATE SYMPTOM SCORE VERSUS INTERNATIONAL PROSTATE SYMPTOM SCORE IN MEN WITH LOWER URINARY TRACT SYMPTOMS"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

**"VISUAL PROSTATE SYMPTOM SCORE VERSUS INTERNATIONAL PROSTATE SYMPTOM SCORE IN MEN WITH LOWER URINARY TRACT SYMPTOMS"** ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ